3DS MAX • BLENDER • MAYA • MODO • CINEMA 4D • POSER • LIGHTWAVE • VUE

www.3DArtistonline.com

3DArtist

17

Practical inspiration for the 3D community

DAZ3D Carrara 7 Pro
Free full product
PC and Mac versions worth $550

• Masterclass
Blender fabrics
Get to grips with cloth mechanics

• Feature
Movie effects revealed
CGI for Robin Hood, Prince of Persia & V – The Visitors

OLIVIER PONSONNET
Exclusive interview with the master portrait artist from France

In the Workshop
- Master caustics
- Maya clay renders
- 3ds Max mood lighting
- Vue underwater scenes
- Volumetric Poser lighting
- Make planets in CINEMA 4D

• Revealed
Software for free
The ultimate guide to free 3D programs and resources

MASTER 3D SKILLS
Tutorials to teach you modelling, texturing, lighting and rendering

DAZ3D Carrara 7 Pro
Exclusive full product for PC/Mac
Digimation models
Pro-quality, multi-format assets
ON YOUR FREE CD

FULL PROGRAM + $6,100 OF MODELS

© Imagine Publishing Ltd
No unauthorised copying or distribution

ip IMAGINE PUBLISHING

Not just for dummies

Mac for Beginners
Android for Beginners
All you need to get started with your Android device
All the essential apps
Setting up your device
Learn about Gmail & Maps
Full guide to Android Market
iPad for Beginners

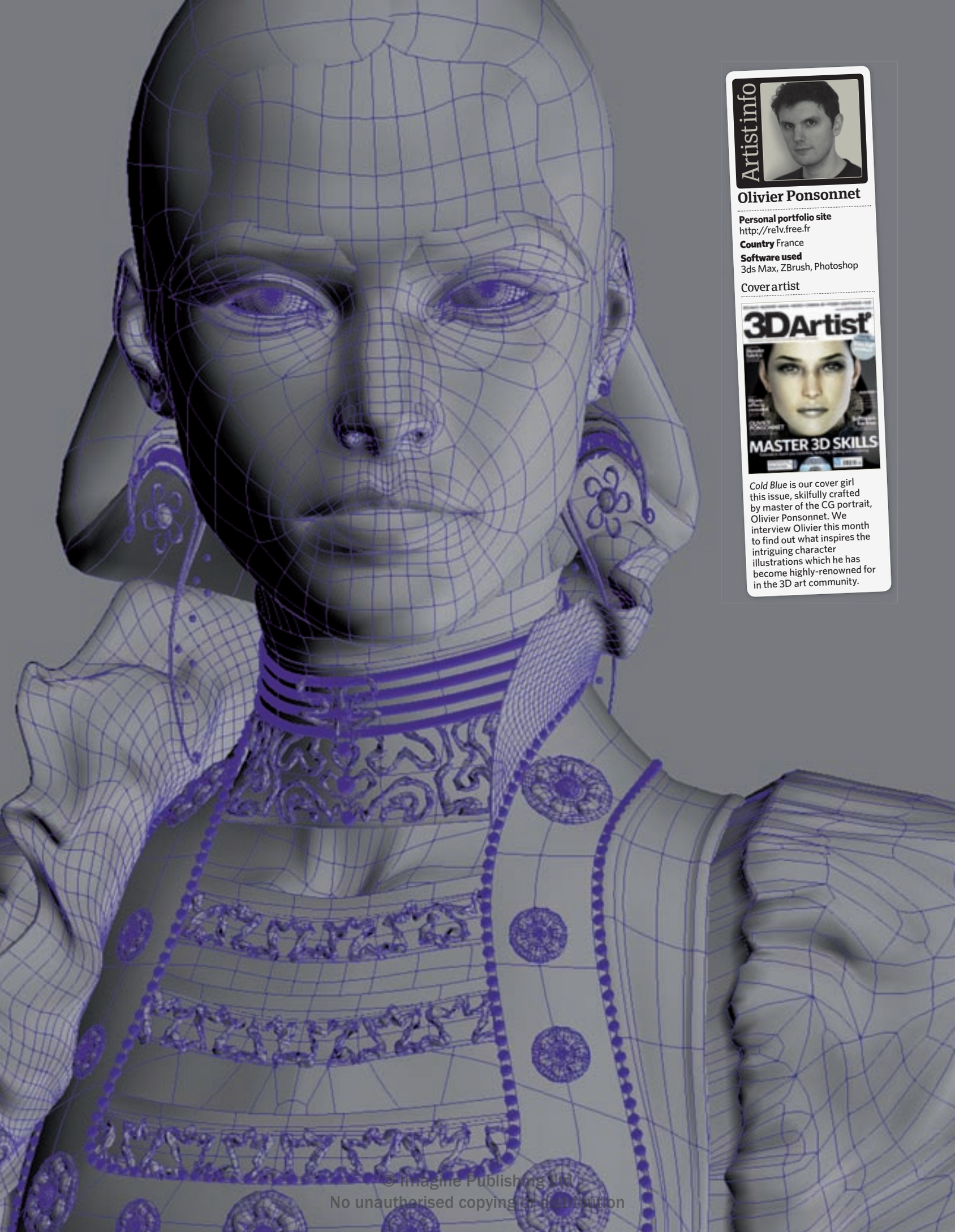
for Beginners™

A clear, comprehensive series for people who want to start learning about iPhone, iPad, Mac, Android and Photoshop

Also in this series

Bookazines
eBooks • Apps
www.imaginebookshop.co.uk

High street | Kindle Store | ImagineShop.co.uk | App Store



Artist info

Olivier Ponsonnet

Personal portfolio site
http://re1v.free.fr

Country France

Software used
3ds Max, ZBrush, Photoshop

Cover artist

Cold Blue is our cover girl this issue, skilfully crafted by master of the CG portrait, Olivier Ponsonnet. We interview Olivier this month to find out what inspires the intriguing character illustrations which he has become highly-renowned for in the 3D art community.

© Imagine Publishing Ltd
No unauthorised copying or distribution

Welcome

to the magazine and 116 pages of amazing 3D

Every issue you can count on...

1. **116 pages of creative inspiration**
2. Behind-the-scenes guides to images and fantastic artwork
3. **A CD packed full of creative goodness**
4. Interviews with inspirational artists
5. **Tips for studying 3D or getting work in the industry**
6. The chance to see your art in the mag!

With *Avatar* being mooted for a summer re-release with an extra six minutes and Weta doing roadshows explaining the workflow of the creation of the film, the big blue epic is still at the forefront of the CGI world. The question I find myself asking is whether it's a cinematic and cultural defining moment – or just the most profitable movie ever. *Star Wars* in '77 and *The Matrix* in '99 were both game changers for different reasons. *Avatar* could do the same and it's certainly made 3D uber-fashionable, even if the plot was tosh. Feel free to debate the merits of *Avatar* or the future of 3D on our forums and enjoy the issue.

Duncan Evans, Editor

This issue's team of expert artists...

Dieter Meyer

Dieter's Spitfire project takes to the air this issue with textures, lighting and compositing. Files are on the disc for you

Waldemar Bartkowiak

Texturing fun with a *Mad Max*-style, post-apocalyptic car based tutorial. You can smell the rust and dirt from here

Paul Francis

Paul is our Poser expert and comes up with all manner of tips and ideas to make your Posing life as easy as possible

Lance Hitchings

Lance runs a design studio in the States, and also comes up with solutions for all your general Maya-related problems

Dominic Davison

Our resident Vue expert creates images that mortals can only dream of. Dom is here to reveal all about Vue

Daniel Lovas

The guy with CINEMA 4D in his DNA is a sci-fi enthusiast and can solve any problem you may encounter

Viktor Fretyán

Viktor is back to show you how to create beautiful lighting in your architectural renders. Check out the ambience

Drea Horvath

Budapest's finest Vue artist is back with a guide to creating a lovely and detailed Chinese-style ornamental garden

Andrzej Kuziola

It's all in the painting as Andrzej demonstrates with this cute and scary image of a girl going trick or treating

Ryan Knope

When he isn't busy in his architectural design studio, Ryan is available to answer questions on 3ds Max and arc-vis

David Crookes

When we want a feature that no one else can do, and if we can find him, we give the job to Dave. Der-de-der, da da dahh!

Tim Shelbourne

He might look like Catweazle (Google it), but no one knows Photoshop like Tim. Well, except the odd person at Adobe

Sign up, share your art and chat to other artists at www.3dartistonline.com

3DArtist

Imagine Publishing Ltd
Richmond House, 33 Richmond Hill
Bournemouth, Dorset BH2 6EZ
☎ +44 (0) 1202 586200
Web: www.imagine-publishing.co.uk
www.3dartistonline.com

© Imagine Publishing Ltd 2010

ISSN 1759-9636

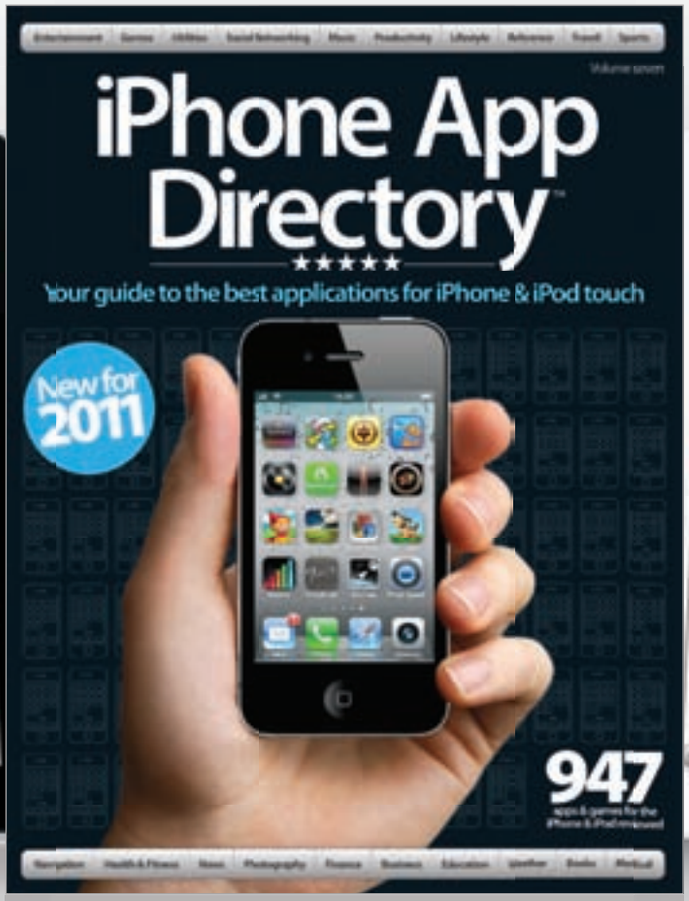
IMAGINE PUBLISHING

recycle

© Imagine Publishing Ltd
No unauthorised copying or distribution

It's a jungle out there. Swing through it

iPad



Printed full colour large format book

Kindle

Directory™

★★★★★

The definitive review listings for iPad, iPhone and Android apps

Also in this series

Bookazines
eBooks • Apps
www.imaginebookshop.co.uk

HIGH ST. BUY IN STORE — High street

amazon — Kindle Store

ip — ImagineShop.co.uk

App Store

Contents 17

Discover how these images were created...

54

Create a Spitfire Mk5B

“I’ll cover the aspects of UV mapping the Spitfire then pre-painting the model in modo”

Eight-page step-by-step walkthrough

© Imagine Publishing Ltd
No unauthorised copying or distribution

48

“It’s like you can virtually smell the rain. I always wanted to create renders that move the viewers emotionally”

Viktor Fretyán, on capturing a stylish art gallery in CG. **Page 48**

The workshop

72 Masterclass: Blender cloths
How to use cloth mechanics in Blender to create realistic fabrics

76 Questions & Answers
This section is for users with some experience of 3D who want to know more

Maya: Clay renders

Poser: Volumetric lighting

3ds Max: Moods in renders

CINEMA 4D: Entire planets

Vue: Underwater adventures

84 Back to Basics: Caustics in Maya
Learn all about caustics and how to use them in your projects. Files are on the CD

Carrara 7 Pro: full program for PC/Mac

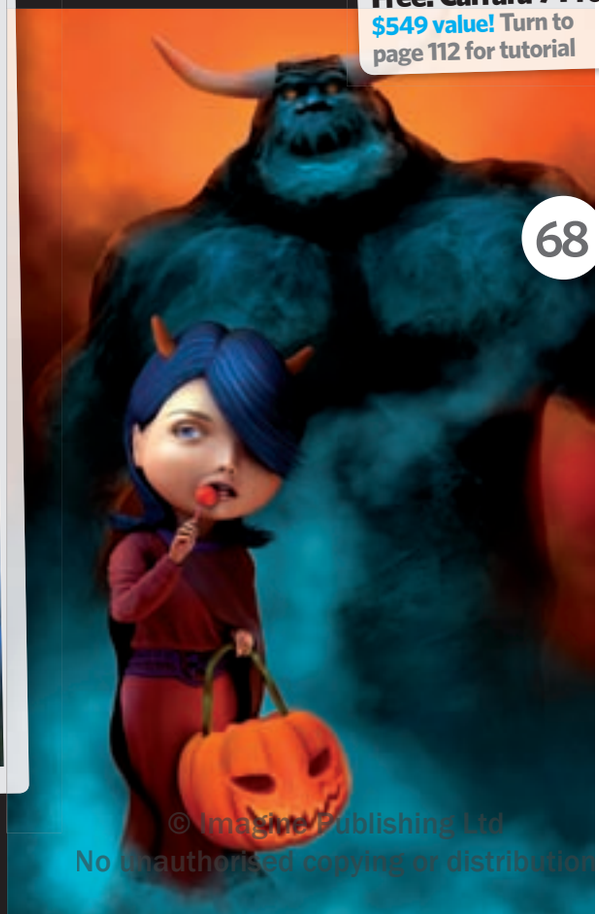
Complete commercial software for modelling, lighting and rendering

Plus a range of Digimation models **worth over $6,100**

Turn to page 110 for the complete disc contents

On the Disc

Free: Carrara 7 Pro!
$549 value! Turn to page 112 for tutorial



68

© Imagine Publishing Ltd
No unauthorised copying or distribution

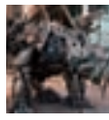
The studio

Professional 3D advice, techniques and tutorials

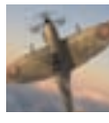
44 Step by step: Texturing a post-apocalyptic car
How to give a *Mad Max*-style car that layer of dirt using LightWave

48 Step by step: Creating a stylish museum building
Viktor gives us the lowdown on making materials for sleek arc-vis

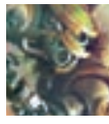
52 I made this: Einar Martinsen, *Invasion*
Fantastic robotic creatures are busy ripping up the city streets



54 Behind the scenes: Create a Spitfire – Part 2
Concluding part adds materials and lighting then composites the scene



62 I made this: Hodong La, *Discovery*
Awesome detail and scale for this robot falling from the sky



64 Step by step: Create a Chinese-style garden
How to use Vue to create a lush spring garden with waterfalls

68 Step by step: Painting a demon
Take a finished render and give it a demonic finish with vivid colours

Continued overleaf

There’s even more inside...

Turn the page to discover the interviews, reviews, industry advice and more that we’ve packed into this issue...

INSIDE ISSUE SEVENTEEN

Contents 17

Inspiration • Interviews • Reviews and more

11 The Gallery
The best 3D art we've seen this month from around the world

20 Community
All the news and letters from the 3D community

26 Feature: Inside the movies
Behind the CGI in *Robin Hood*, *Prince of Persia* and from the small screen, *V – The Visitors*

30 Feature: Free software for all
On a budget? Here's what you can get for free in the 3D world

36 Interview: Olivier Ponsonnet
The master character portrait artist gives **3D Artist** a fascinating glimpse into his world

44 The Studio
A feast of tutorials and insights

72 The Workshop
The brains of the magazine with Masterclass, Q&A and Back to Basics

88 Review: Photoshop CS5
The latest version of Adobe's industry leading editor reviewed

91 Review: Vue 8.5
The mid-season release from e-on adds more functionality

91 Review: ArtWorks 3.5
Turn your bland renders into oils, comics or pen sketches

92 Training materials
New review section for books, DVDs and online training

108 Subscribe today!
You don't want to miss an issue and it will save you lots of cash

110 On the CD
Discover the range of free goodies on the CD in this issue

112 Carrara 7 Pro tutorial
Full product on the disc for PC and Mac so here's how to use it

See your artwork here...
Create a gallery today at
3DArtist online.com
Share your art, comment on other artists' images

"I think the most important process is modelling the face. I can spend hours until I get some kind of harmony"

Olivier Ponsonnet, on the creative process. **Page 36**

workspace 3D

Inside guide to industry news, studios, expert opinion & education

96 Industry news
Latest industry developments and announcements revealed

98 The Insider: David Bruce
Working in games, training DVDs and on TV shows and adverts, David is now the boss of his own studio

100 Studio Access: *Gears of War 3*
We look behind the scenes on the latest cinematic trailer for the game

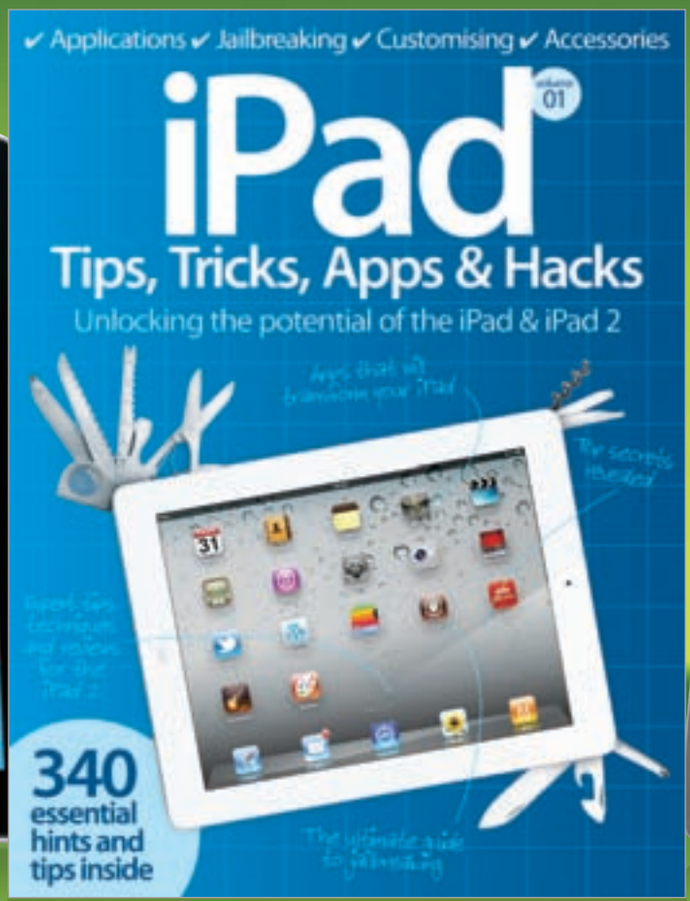
102 Uni focus: VanArts
Discover the exciting courses available in Vancouver, Canada

© Imagine Publishing Ltd
No unauthorised copying or distribution

We don't keep secrets

iPhone
Tips, Tricks, Apps & Hacks
The insider's guide to unlocking the potential of the iPhone
340
essential hints and tips inside

iPad



Printed full colour large format book

Kindle

Tips & Tricks™

Learn the truth about iPhone, iPad, Android, Photoshop and more with the Tips & Tricks series' expert advice and tutorials

Also in this series

Bookazines
eBooks • Apps
www.imaginebookshop.co.uk

Now available on

HIGH ST. BUY IN STORE — High street
amazon — Kindle Store
ip — ImagineShop.co.uk
App Store

MASTER PROFESSIONAL PHOTOSHOP SKILLS

Advanced Photoshop

ON SALE NOW!

IN EVERY ISSUE:

- Expert tutorials
- In-depth features
- Competitions
- Advice from Photoshop pros
- Inspirational imagery

FREE DISC EACH MONTH!

- PHOTOS • TEXTURES
- BRUSHES • VECTORS
- TUTORIAL FILES

www.advancedphotoshop.co.uk

IMAGINE PUBLISHING

Buy your copy today at www.imagineshop.co.uk

© Imagine Publishing Ltd
No unauthorised copying or distribution

WELCOME TO THE GALLERY

Nine pages of great artwork from the 3D community

Images we love!

> The challenge for this image was finding a suitable style for the character, because I wanted to create a cartoon without losing Manson's personality
>
> **Adrian Wilman Purwadjaja ,** *Marilyn Manson,* 2010

Artist info

Adrian Wilman Purwadjaja

3DArtistonline.com
Username polyvertedges

Personal portfolio site http://polyvertedges.cgsociety.org

Country Indonesia

Software used 3ds Max, V-Ray, ZBrush, Photoshop

Work in progress...

Featured artists

Adrian Wilman Purwadjaja

See a rock legend brought to animated life

Gak Gyu Choi

A glimpse of the future? A well-crafted mix of the organic/inorganic

Dani Garcia

Hot stuff! This model could have just walked off a photoshoot

Tina Marie Lane

Tolkien lovers will be swept away by this epic *Hobbit*-inspired town

Toni Bratincevic

Admire the authentic textures in this dramatic toy composition

Massimo Righi

Attenborough, eat your heart out! A photoreal big cat at night

Anton Cherenko

Postman Pat fans will love this detailed, cartoon-style vehicle

Get your artwork featured in these pages

Simply send it to the **3D Artist** Gallery. Here's how...

Enter online

3DArtistonline.com

Hang your art in our online gallery and get selected for the magazine

1. Register with us

Check out the website below and click on Register. Choose a username and password and you're ready to go.

www.3dartistonline.com

2. Upload your images

Once registered, you can upload images to your gallery – there's no limit on numbers but check the size criteria.

3. Tell us about them!

Have an image you feel passionate about? Drop editorial an email at **duncan.evans@imagine-publishing.co.uk**.

Email or post

You'll be missing out on a thriving 3D community, but if you'd rather submit your work by email or post, here's how. Make sure your image is at least 3,000 pixels on the longest side, save it as a maximum quality JPEG or zip it up as a TIFF and email it to the address below. Please include your contact details! If you've created a Pixar-beating animation and want to see that featured on the cover CD, then save it onto a CD and post it to us. You can also send your images on CD. The addresses are:

duncan.evans@imagine-publishing.co.uk

The Gallery, 3D Artist, Imagine Publishing, Richmond House, 33 Richmond Hill, Bournemouth, Dorset BH2 6EZ

Comment on more great 3D art...

Head straight over to **www.3dartistonline.com**, register and you can leave comments for other artists. Some of the people featured here already have their galleries, so get online and join our club!

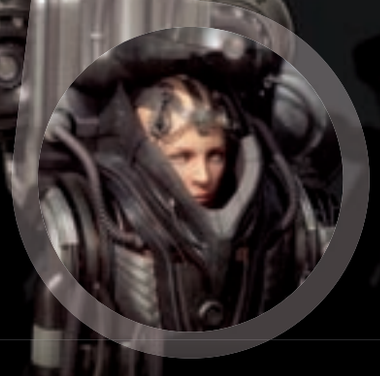
Create your gallery today: www.3dartistonline.com

© Imagine Publishing Ltd
No unauthorised copying or distribution

The team Loves

"An engaging piece, with a high level of intricate detail and impressive metallic textures"

Luke Senior Designer



"The concept of this character is a flying cyborg whose purpose is long-range air battle. It was modelled in Maya using NURBS for the main shapes and then converted to polygons for detailing"

Gak Gyu Choi, *303E – SEIREN,* 2010

Artist info

Gak Gyu Choi

3DArtistonline.com

Username BLUEDAHLIA

Personal portfolio site
www.theodoru.com

Country South Korea

Software used Maya, mental ray

Work in progress...

© Imagine Publishing Ltd
No unauthorised copying or distribution

> With this image, I tried to do a shot that could fit into fashion advertising. I used 3ds Max for the low-poly modelling and rendering, ZBrush for high-poly sculpting, Photoshop to create the textures and Hair Farm to do the hair

Dani Garcia, *Fashion Model,* 2010

Artist info

Dani Garcia

Personal portfolio site http://woodys3d.cgsociety.org/gallery

Country Spain

Software used 3ds Max, ZBrush, Photoshop, Hair Farm

Work in progress...

The team Loves

> A lot of work has gone into both the skin textures and also the overall sunny ambience

Duncan Editor

© Imagine Publishing Ltd
No unauthorised copying or distribution

“This piece was inspired by the perspective of Bilbo’s first sighting of Lake-town written in J.R.R. Tolkien’s *The Hobbit*. I wanted to depict how grand this town would look to a small hobbit far from home, gazing on this strange human town built on the surface of the lake constructed entirely of wood”

Tina Marie Lane, *Esgaroth (Lake-town)*, 2010

The team Loves

“Muted colours, great lighting and reflections add real atmosphere to this Tolkien-inspired work”

Luke Senior Designer

© Imagine Publishing Ltd
No unauthorised copying or distribution

Artist info

Tina Marie Lane

3DArtistonline.com

Username Alanise

Personal portfolio site
http://www.toyrocket3d.com

Country United States

Software used 3ds Max, Photoshop

Work in progress...

© Imagine Publishing Ltd
No unauthorised copying or distribution

The team Loves

"The dramatic camera angle really sells this shot, with the depth of field perfectly describing the scale and danger"

Lynette News Editor

Artist info

Toni Bratincevic

3DArtistonline.com

Username InterceptoV

Personal portfolio site
www.interstation3d.com

Country Croatia

Software used 3ds Max, V-Ray

Work in progress...

"Remember when we were young? When we didn't know what's good and what's bad? How we sometimes destroyed our toys and our parents told us that we should try to imagine that that toy was a real person or animal. Well, most of us only need that one lesson, but..."

Toni Bratincevic, *Running Away,* 2010

© Imagine Publishing Ltd
No unauthorised copying or distribution

"Another wildlife portrait, which is one of my favourite subjects to recreate in 3D art. This image is based on a shot of a leopard taken at night"

Massimo Righi, *Leo*, 2010

The team Loves

"Excellent fur texture and defined muscles under the skin make a superb image"

Duncan Editor

Artist info

Massimo Righi

Personal portfolio site
www.massimorighi.com
Country Italy
Software used Maya

Work in progress...

© Imagine Publishing Ltd
No unauthorised copying or distribution

Artist info

Anton Cherenko

Personal portfolio site http://cherenkoart.blogspot.com

Country Ukraine

Software used 3ds Max, V-Ray, OnyxTREE, After Effects, Photoshop

Work in progress...

The team Loves

"This little postal truck has bags of personality and the reflections on the headlights spark life into its character"

Lynette News Editor

© Imagine Publishing Ltd
No unauthorised copying or distribution

“This was an image of a postal delivery truck that I made just for fun using a wide range of tools from various programs”

Anton Cherenko, *Postal Service truck*, 2010

© Imagine Publishing Ltd
No unauthorised copying or distribution

Daniel Dociu (**www.tinfoilgames.com**), chief art director for NCsoft's North American studios, donated this stunning digital concept painting, *Crescent Island*
***Guild Wars* images are property of ArenaNet/NCsoft and are used with permission**

Highborne is a graphite and white charcoal drawing on paper, by Eric Braddock (**www.ericbraddock.com**)

This seven-inch Super Sculpey model by Alena Wooten (**http://alenawooten.blogspot.com**) was inspired by a drawing by Peter de Seve

Artists draw together

More than 200 artists have contributed art for a good cause

3DArtist online.com

Did you contribute to the Beautiful Grim art auction? Want to show off your entry or discuss other people's work? Head along to the forum at **www.3dartistonline.com/forum**

The CG communities provided strength in numbers as contributions for the Beautiful Grim auction flooded in to help raise money to fight cancer.

Mike 'Daarken' Lim (http://daarken.com) is a concept artist who has worked for the likes of Mythic Entertainment, Wizards of the Coast, Fantasy Flight Games and Blizzard, and has built up a remarkable reputation in the CG industry, as well as the community, over the last four years. In 2009, with the support of friend and DreamWorks animator Leif Jeffers, Mike launched an open submission to the various art communities to gather work for an art auction, in support of his girlfriend Cat's battle with breast cancer.

Cat was diagnosed last year at the age of just 25, and in November had a bilateral mastectomy after having already been through 16 weeks of chemotherapy. The response from the community was overwhelming – over 200 artists sent concept art sketches, photographs, sculpts, illustrations and more. With submissions from artists at Blizzard, Rockstar, ArenaNet, Massive Black, Pixar, Disney, Blue Sky Studios and DreamWorks to name just a few, the call for submissions was a spine-tingling success.

The idea behind the art auction was to throw something that was both fun and creative for the community, while raising awareness and in return helping Cat with the substantial medical fees that battling cancer demands in the USA. The proceeds from the art auction, which is being held on eBay in waves due to the massive amount of art submitted, will go towards covering Cat's medical bills, and the remainder will go to a breast cancer-related charity that will be determined by the contributing artists. The first wave of the auction has already raised $4,109.14 after eBay took a cut and the shipping expenses were deducted, which is a tremendous effort from all involved.

You can follow future waves by subscribing to the newsletter at http://beautifulgrim.org, where you can also donate directly to the cause. Be sure to also check out the full online gallery of submitted art.

> "The art community really took charge with this one, that's for sure"
> **Eric Braddock** – contributing artist

© Imagine Publishing Ltd
No unauthorised copying or distribution

3D events update

A guide to forthcoming events in the 3D art industry calendar

SKIP CITY INTERNATIONAL D-Cinema FESTIVAL

Date 23 July – 1 August
Location Saitama, Kawaguchi, Japan

An annual international competitive festival of digital movies and creations, SKIP aims to discover the next generation of talent, while contributing to the development of the new film industry.
www.skipcity-dcf.jp

QuakeCon 2010

Date 12-15 August
Location Dallas, Texas, USA

At this free convention run by volunteers, you'll meet thousands of gamers from all over the world to compete in tournaments, and also find the latest in technology.
www.quakecon.org

KLIK! Amsterdam Animation Festival

Date 16-19 September
Location Amsterdam, Netherlands

Promising the 'best, most fun filled KLIK! festival' yet, this year it's all about the relationship between animation and science. Having grown since 2007, KLIK! is fast becoming an international event.
www.klikamsterdam.nl

DV Expo 2010

Date 28-30 September
Location Pasadena, California, USA

A two-day conference covering video production and postproduction equipment and services, DV Expo is a trade show that features hands-on training from the likes of Sony, JVC and Canon.
www.dvexpo.com

Composition is the most important aspect for Viktor, as reflected in these perfectly balanced scenes

Masterpiece

Balancing colour, light and volume

Viktor Fretyán demonstrates that drama is all in the camera shot with the renders of his KUMU project

Viktor Fretyán http://radicjoe.cgsociety.org

When Viktor was inspired by the KUMU art museum in Estonia to create a series of seasonal renders, he knew the project would be a time-consuming one. Not wanting to render 11 versions of the same scene, he set out to make each of the 11 final renders a standalone project. "There were times when I finished a scene and the end result turned out great and I really wanted to show it to other people," Viktor told 3D Artist. "But I had to hold it back for months because I knew I still had other scenes in my head that I wanted to make."

Asia calls for entries

Submit your best work to the SIGGRAPH Asia 2010 Computer Animation Festival

SIGGRAPH Asia 2010 will host its third Computer Animation Festival later this year, showcasing the latest in CG animation and visual effects produced by artists from all around the world.

The Computer Animation Festival welcomes submissions from those who have completed computer-generated productions – or at least where the computer has been essential to the project's creation – on or after 1 January 2009. The online submission process is open now and the deadline for all submissions is 15 July 2010. Submissions can include animated shorts/feature films, commercials, music videos, real-time/scientific visualisations and visual effects. They are also open to submissions for the Panels & Talks element of the festival. For more information visit www.siggraph.org/asia2010/.

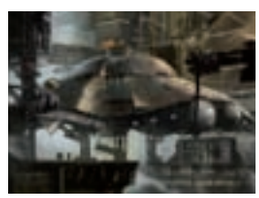
Sci-fi comedy tease

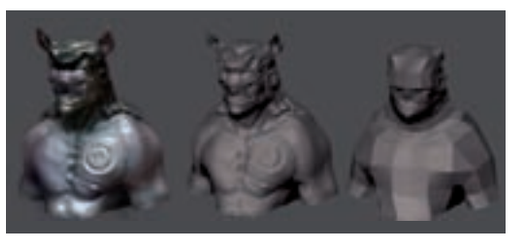
From the makers of Star Wreck comes a teaser trailer for new sci-fi film, Iron Sky

***Iron Sky* is an independent science-fiction film currently in the making by Energia Productions and Blind Spot Pictures, which is being co-produced by 27 Films.**

Set in the year 2018, this full-length feature film is a comedy based on a controversial story of when Nazis fled planet Earth for the dark side of the moon in 1945, following a significant breakthrough discovery in anti-gravity technology. This Finnish-German co-produced film will see the powerful fleet of spaceships return to take over the Earth...

All set to be distributed to the world via the wonders of the internet, as well as through theatres, *Iron Sky* will be brought to audiences primarily in English. You can follow the production of the movie at www.ironsky.net, or get involved yourself at www.wreckamovie.com.





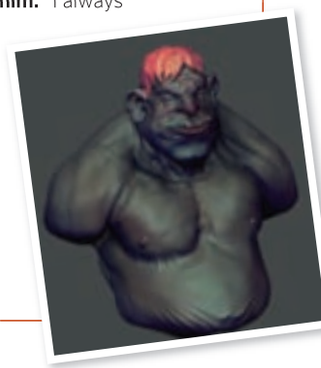
3D Sketchbook

Imaginative busts

At the end of a long day, David Chung unwinds with a quick doodle in ZBrush

David Chung http://3dchung.blogspot.com

David makes quick studies and explores ideas in ZBrush, usually taking a sphere or pre-made base-mesh and sculpts intuitively, going where the mesh takes him. "I always hated the fact that you needed days to get results with 3D compared to a few hours with drawing and painting," David told 3D Artist. "However, ZBrush has changed that: now I can just take a sphere, work on it for an hour or two, export out some screengrabs and do some colouring in Photoshop and call it finished. It's truly a joy to work with."



© Imagine Publishing Ltd
No unauthorised copying or distribution

Free 3D Resources

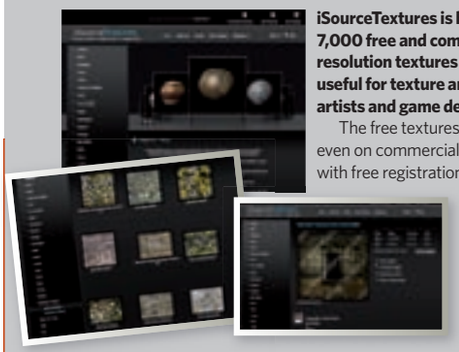
Inspiring free stuff

Free textures and sources of inspiration will take care of those lack-lustre 3D days

iSourceTextures.com

Free high-res textures aimed specifically at 2D and 3D CG artists

Web: www.isourcetextures.com



iSourceTextures is home to over 7,000 free and commercial high-resolution textures which are useful for texture artists, 3D artists and game developers alike. The free textures can be used even on commercial projects and with free registration you can get started by downloading – and even uploading your own – textures today.

Trespa

A collection of wood and natural materials perfect for use in SketchUp

Web: http://perspectives.trespa.com/naturals/us/index.html

Trespa, manufacturers of wood and natural decors, has a great collection of material samples that are ideal for artists working in SketchUp. Those rendering in higher resolution may need to tweak the images for tiling, but these architectural samples should help you create some stunning façades for your projects.

Dark Roasted Blend

Forget cake – get some inspiration with your morning coffee

Web: www.darkroastedblend.com

Dark Roasted Blend is a website filled with all things weird and wonderful that will inspire you in those moments of need when motivation (and caffeine) levels are dwindling. Grab a coffee, jump on the website and check out the massive collection of references of wacky aeroplanes, crazy architecture and kooky robots.

The art of the game

The art behind the Game of the Year, UNCHARTED 2: Among Thieves gets showcased in Ballistic's latest book

Kicking off Ballistic Publishing's new *Art of the Game* series is a 272-page showcase of the game art and ideas that contributed to the making of *UNCHARTED 2: Among Thieves*.

The Art of UNCHARTED 2: Among Thieves is a backstage pass that gives us access to the concept art, character studies, environment art, character modelling, game art, cinematics, motion-capture, animation and effects behind the game produced by Naughty Dog. The book is available in soft cover, Special Edition and even as a Limited Folio Edition. Prices start from $65, so whether you're just looking for inspiration or you're an avid game art fan or serious connoisseur, there's a format to suit. Visit www.ballisticpublishing.com/books/uncharted2 to preview the book and order your copy.

This 272-page showcase is the ultimate companion for game art fans

work in progress

Double trouble

When Christophe Desse's day at Naughty Dog ends, he busies himself with sideline projects – often two or more at the same time – to keep his skills up to scratch

Christophe Desse www.xtrm3d.com

Christophe is ever keen to sharpen his skills, workflow and techniques. Choosing to work on personal projects when he gets home, he doesn't like to feel as though he has to work on anything specific. His answer to this is to work on several projects simultaneously, sometimes in collaboration with other artists, such as Olivier Couston and Augusto Venturi.

Currently working on two main projects, *Speeder* and *65 GTO*, Christophe is using Mudbox, Maya and modo to sculpt and model. *Speeder* is now in the re-sculpting phase, while *65 GTO* is envisaged to be a realistic car coupled with stylised characters. Christophe told 3D Artist: "I envision some sort of priest driving around chasing zombies and vampires in a sweet Sixties setting."

Christophe has two main WIPs on the go: *Speeder* and *65 GTO*

© Imagine Publishing Ltd
No unauthorised copying or distribution

Artist spotlight

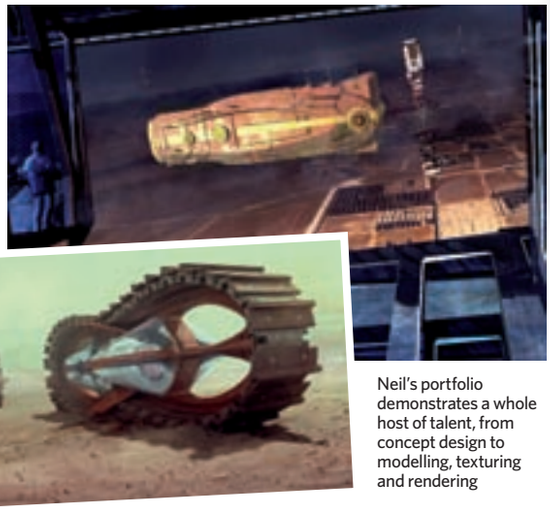
The future in style

Neil Maccormack is a freelance artist from the UK who is using LightWave to stunning effect in his futuristic 3D illustrations

Neil Maccormack www.bearfootfilms.com

Neil waved goodbye to IT and advertising for a career in 3D. Now based in Geneva, Switzerland, he draws inspiration from nature, films and art to develop the unique style that is instantly recognisable in the community.

Incorporating futuristic elements and real-world objects, his illustrations have served to build an incredible portfolio. Staying true to LightWave, which has seen him good since his early days in 3D, Neil has said, "One of my housemates downloaded and showed me the demo version of LightWave – possibly version 4 or 5. I was pretty astounded at what I saw, and the more and more I became interested in 3D, the more and more I used LightWave."



Neil's portfolio demonstrates a whole host of talent, from concept design to modelling, texturing and rendering

Software shorts

Get the lowdown on updates and launches

Vue Cocoa 64 Early Beta

The Early Beta of Vue Cocoa 64 is a complete rebuild of Vue for the Mac, offering true 64-bit processing power capable of managing even more complex scenery with up to three times the rendering speed. The Early Beta is free to all Vue 8 Infinite and xStream customers via their User Account page found on www.e-onsoftware.com.

V-Ray 1.50 SP5 for Max

Chaos Group has announced the release of a new service pack to fix many of the bugs and to provide new, modified and improved features for 3ds Max users. The V-Ray 1.50 SP5 is compatible with 3ds Max 2011 and 3ds Max Design 2011.

Visit **www.chaosgroup.com** if you'd like to download the pack right now for free.

Tools of the trade

CARRARA

An all-in-one, cost-effective 3D solution for artists

Carrara is a powerful and accessible tool that has been helping artists to enjoy modelling, posing, design, animation and rendering all in one package and at an affordable price for years.

With Carrara 8 and Carrara 8 Pro versions now available, artists have access to the enhanced tools and optimised rendering that the new releases offer, such as improved plants and vegetation and the editing of posed meshes. Serious artists are choosing Carrara 8 Pro, which has support for 64-bit and multi-core processors to render in a fraction of the time, while game developers are already benefiting from the updated export facilities that allow custom figures, environments and animations to be transferred directly into the Unity game engine via the FBX file format.

"For months I had worked with several high-end 3D suites trying to transport my animated models into the Unity game engine with no success," said Carrara user and Unity developer, William Bell. "It wasn't until I installed Carrara 8 Pro that I experienced a completely seamless export, directly into the engine on the very first try."

Check out this issue's disc for a full version and also to get a discount on Carrara 8/Carrara 8 Pro. See page 111 for more information.

Carrara 8 and Carrara 8 Pro offer improved animation, new vegetation tools and optimised rendering

3DArtist online.com
Create your gallery, browse the artwork, chat with experts and artists and get tips and techniques at
www.3dartistonline.com

© Imagine Publishing Ltd
No unauthorised copying or distribution

Have your say

Write, email or use the website forums to get in touch about the magazine, your problems or triumphs

Send your letters to...

Email the team directly with your letter
3dartist@imagine-publishing.co.uk

Log in and leave your comments on the forum
www.3dartistonline.com/forum

POST TO:
The Editor, 3D Artist,
Imagine Publishing,
Richmond House,
33 Richmond Hill,
Bournemouth,
Dorset
BH2 6EZ, UK

Snail raider

I am sending you an image I have created. The work started as an assessment for my 3D course but has evolved in time to the current form. It's the presentation of a virtual snail raider who is ready to race. I've tried to keep an overall human shape while all the expressive features (such as the one eye) are in the wrong place. The snail enhances the wild spirit of the character and balances the composition. I modelled the basic shape in 3ds Max, refined in ZBrush and rendered with mental ray, experimenting with the rendering time for the model (15,000,000 polys). With three Standard lights and default Final Gather settings, the full definition render (4,961 x 3,508) took less than eight minutes on my 2.66 quad core.

Tristan Dyczkowski, by email

Thanks for sending it in. There's a good mix of shape and surface materials at work here. All you need now is a compelling environment to put the characters into.

Snail Raider
Modelled in 3ds Max and ZBrush by Tristan Dyczkowski

To free or not to free

I have just recently become involved in the world of 3D artistry. It has always been of interest to me, but I wasn't sure how to get started. Purely by chance, I came across Blender and 'free' being right in my price range, I downloaded the latest release. I am quite impressed by the level of control it has for open source. I've followed a few tutorials online, bought a couple of issues of 3D Artist and am really enjoying it.

Here is my question though. Can an enthusiast ever achieve anything like decent results with Blender and GIMP and the like, or are they seen as a beginner's software for learning only? The artwork showcased in the mag, lovingly created in 3ds Max, ZBrush, Maya, etc is truly mind-blowing to me, but the prices of these packages is just too much for me to pay out for something I might not even be that good at. Should I work on building up my Blender skills before I think about saving for pricier software?

Ian Plumpton, by email

In a word, yes. And yes you can make great artwork with Blender eg see the Masterclass, starting on Page 72. The interface isn't the easiest to use, but if you master the program, then that will stand you in good stead with any commercial package later.

Hatchling
Prehistoric pterosaur created in ZBrush by Markus Nordstrom

Off to school

I just got hold of the latest issue of 3D Artist and I was looking at the Uni focus. I am very interested in going to university this year, as I love 3D modelling, but I have found

© Imagine Publishing Ltd
No unauthorised copying or distribution

Cathedral
First-place entry in an Evermotion competition created by Luis Tejeda

that there are a lot of courses in game design and so on. As you guys review a lot of universities, I was wondering if you could send me some pointers on which universities in the UK are best. I have heard about students that get a degree and then find they're nowhere near what the industry is after in terms of knowledge or skill level.

Christian Key, by email

What uni you attend is down to you, but what can be worthwhile, once your course has wrapped up, is looking to get specialised training at somewhere like Escape Studios. These guys all work, or have worked, in the business and their training is ideal preparation for getting a job. They have excellent studio contacts as well, so you stand a much higher chance of finding a job afterwards.

Monster mesh

I am a digital artist living in Stockholm, Sweden. I have included my latest image which I want to submit to you for consideration for The Gallery.

The image is called *Hatchling* and depicts a young pterosaur (winged dinosaur) in its cave nest. The model was created in ZBrush using several ZSpheres in ZSketch mode. After generating Unified Skins, the meshes were combined using Remesh All. The Project All feature was used to retrieve all the detail from the ZSketches and additional detail was sculpted using the traditional 3D brushes. The final image was composited in Photoshop, using several rendered images of the model with different materials and lighting applied. Images of chameleons and leguans were used as photographic reference to make sure the result is believable, even though it is a prehistoric animal.

The cave rock in the background is a 3D model sculpted from a ZBrush cube primitive, with additional detail added in 2.5D mode.

Markus Nordstrom, by email

Thanks for sending this in, Markus; as you've provided lots of details, we thought we'd share them with everyone else here. What your dino is really missing now is the rest of the body so it has a bit more context.

Holy arc-vis wins out

I did this image for an Evermotion competition and it won first place. I based my work on references from photographs and then after modelling everything, I added more and more details to try to capture all the beauty of the Mezquita in two images. This is a Roman Catholic cathedral originally built as a mosque in Córdoba, Spain – my hometown.

For this work I used 3ds Max 2010, V-Ray, Photoshop and Knoll Light Factory. Most of the objects in the scene were unwrapped to achieve the detail I needed with the textures. I used V-Ray Displacement for the column capitals. For the postproduction process, I got different layers from the Render Elements tab such as Specular, Reflections, Z-Depth, Object-ID and others to use them in Photoshop to produce more credible images.

Luis Tejeda, by email

Very convincing and detailed work, Luis. Congratulations on your win!

Best issue yet?

Issue 15 is a superb issue in content (both visual and text) and magazine layout. That kind of combination will always be a winner. More like this! Excellent quality from cover to cover.

Rufus Wells III, by email

We're glad you liked it. The good news is that we have another two themed issues coming up in the near future.

In development

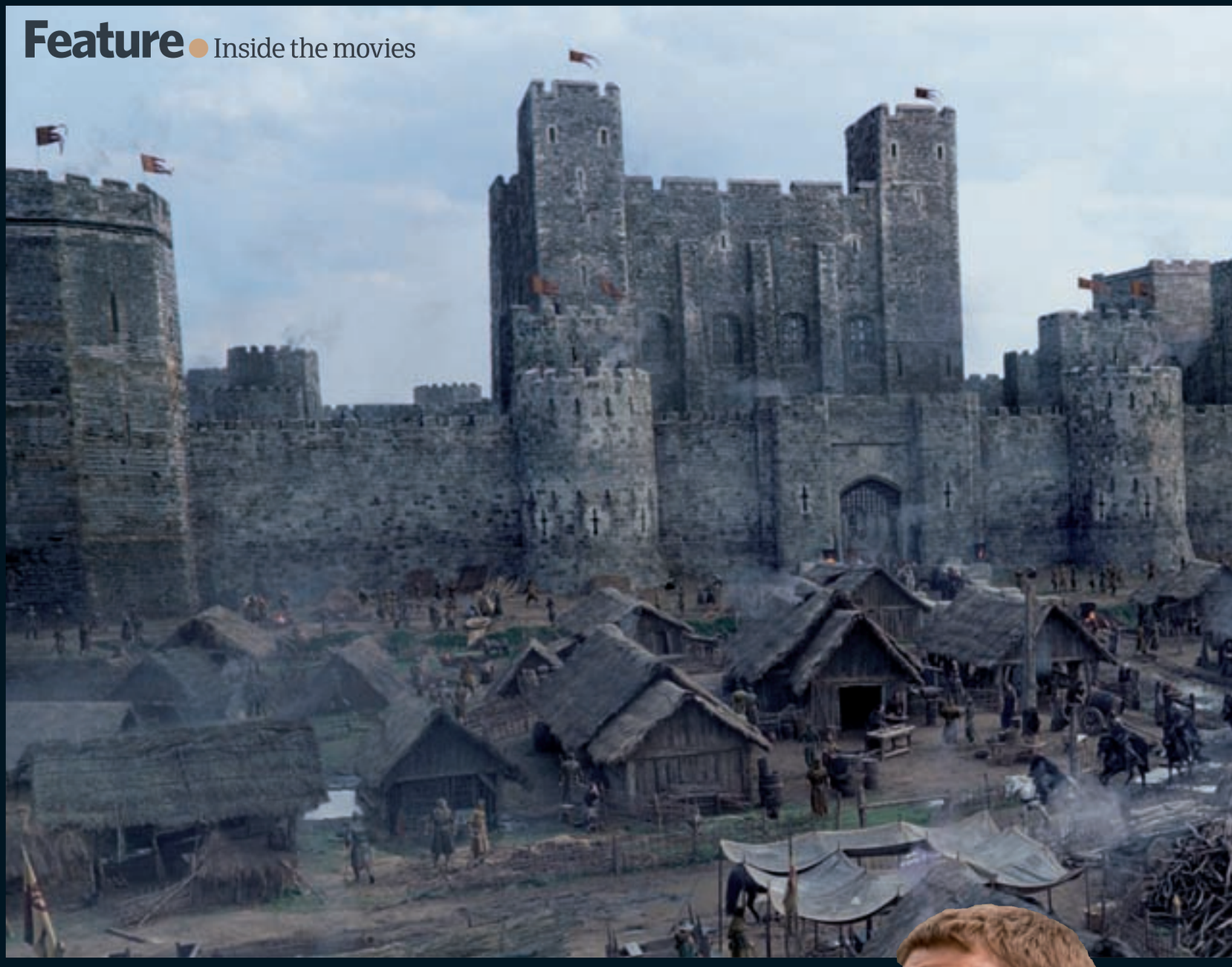
I have written to your magazine before and I really enjoy reading it every time I pick it up. I love the question-and-answer section at the back. I am a Maya user and I have to say, in my field, Lance Hitchings is a god! The last two features you have done with him have been eating away at me for ages so it's nice to see some answers finally. The reason why I am contacting you is in the hope of a couple of things. A friend and I are working on a game we want to develop for the Xbox Live Arcade Indie Games section and I told him that I would contact all the people I know in the industry in the hope that we could generate some buzz around our new game. We would love to promote this idea and we hope that when people see our blog they will understand the scope and creative freedom you can have developing for the console. Please do check us out at http://jdxbox360game.blogspot.com. You can also follow us on twitter at http://twitter.com/Jdxbox360dev.

I hope you enjoy what we are doing and share it with as many people as you can. As far as I know, 3D Artist hasn't done a feature on this kind of thing before and I feel that a lot of 3D artists developing for games should know about XNA and the work that can come out of it. We are trying to set a new standard graphically and up the quality in this sector. Once again, I hope you find our blog an interesting read.

Jamie Thorne and David Bending, by email

We're always glad to help the community, so good luck with your project! We'll bear the feature idea in mind.

© Imagine Publishing Ltd
No unauthorised copying or distribution



Duncan Evans gets the popcorn in for a behind-the-scenes encounter with the latest movies and sci-fi TV

Inside the Movies

© Imagine Publishing Ltd
No unauthorised copying or distribution

© All *Robin Hood* film images, Universal Pictures

> One of MPC's main challenges was to create the invading French Armada and the ensuing battle with the English army

Robin Hood

The early-medieval epic from Ridley Scott recently hit the big screen so 3D Artist took a look at the effects created by the Moving Picture Company (MPC) and Prime Focus. MPC was the lead VFX company, completing 570 shots for *Robin Hood*, starring Russell Crowe and Cate Blanchett. MPC's Richard Stammers was the overall VFX supervisor for the film, working closely with Universal's VFX producer Allan Maris to achieve a wide range of visual effects including CG armies, CG boats, digital environments and CG arrows.

One of MPC's main challenges was to create the invading French Armada and the ensuing battle with the English army. A CG fleet of 200 ships and 6,000 soldiers were added to the eight practical boats and 500 extras used in principal photography. MPC used Alice – its proprietary crowd generation software – to simulate the rowing and disembarkation of French soldiers and horses, with all water interactions being generated using Flowline software. The defending English archers and cavalry were also replicated with CG Alice-generated clips and animated digital doubles. MPC relied predominantly on its existing motion capture library for much of *Robin Hood*, but a special mocap shoot was organised to

A The football field-sized physical set was extended digitally

B One of the film's fortress locations expanded by a montage of real castles

C Arrival of the French Armada to the English coast, with CG cliffs, boats and soldiers

© Imagine Publishing Ltd
No unauthorised copying or distribution

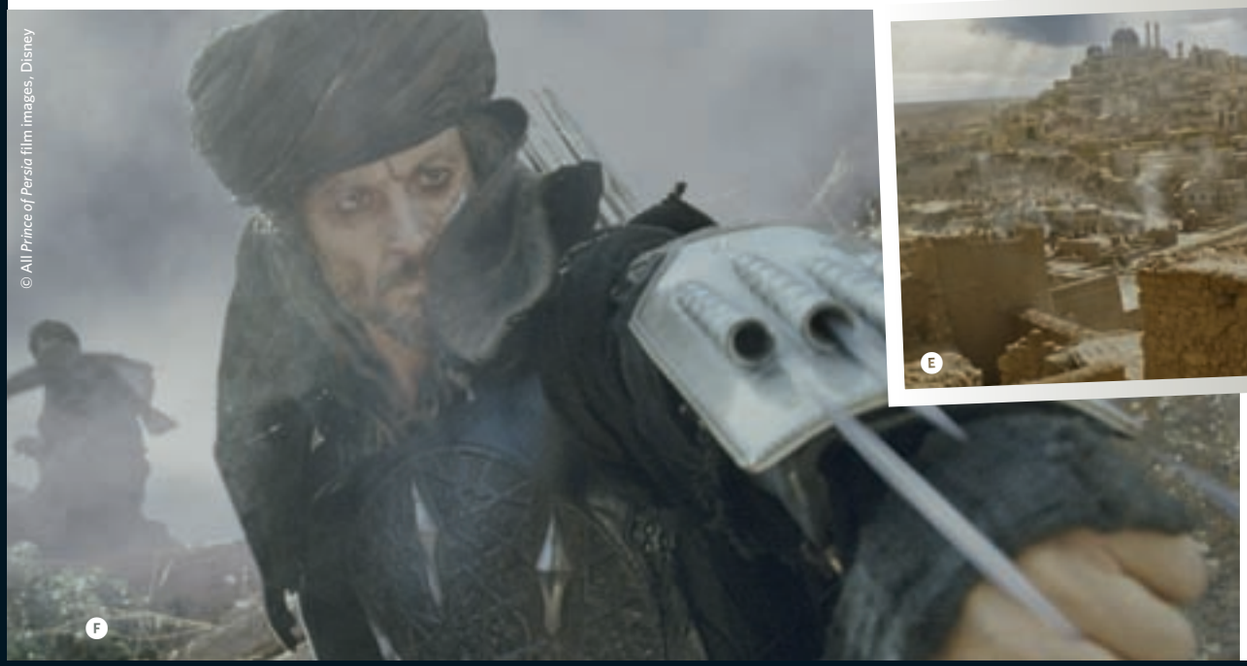
Prince of Persia

We previewed Cinesite's work on this film in issue 15. Cinesite completed over 280 shots on *Prince of Persia: The Sands of Time*, which is based on the 2003 Ubisoft video game and is set in the mystical lands of Persia – or at least somewhere with lots of sand, since half the cast have British accents. The film follows the story of rogue Prince Dastan, played by a buffed-up Jake Gyllenhaal and a mysterious princess played by posh crumpet, Gemma Arterton, and their race to prevent an ancient dagger, which can release the Sands of Time, falling into the hands of an evil ruler (cue pantomime booing).

Directed by Mike Newell, Cinesite's visual effects supervisor Sue Rowe and her team of 60 artists completed a variety of challenging and creative shots on the film which ranged from digital face replacements, including the infamous Ben Kingsley beard and set extensions, through to CGI weapons and matte paintings. Spending six weeks on location in Morocco enabled Rowe to pre-plan how Cinesite would work with the limitations of the shoot, which included small sets, varied skies and limited props. She was then able to offer feedback to her team who could begin previsualising the effects.

As well as all the details we told you about in issue 15, Cinesite also created a full CGI lioness. Using Autodesk Maya, the lioness was generated to reflect a creature that looked starved and malnourished. "We really wanted to present a lioness who was bordering on emaciated to emphasise her need to hunt," said Rowe. "To achieve this look, we graded the lioness to have washed-out coloured fur and deeply emphasised her bone structure around the ribcage and hips." As the hunt scene progresses, the lioness is speared through the mouth by a CGI spear, which was also created using Maya.

Cinesite was additionally tasked with creating a variety of the weapons featured in the film. One of the most challenging of these weapons was the Hassassins' 3D whips, which had claws and blades at the end of them and had to be matched with the stunt props that were used on set. "This was a tricky effect to pull off," commented Rowe. "It's a fast action sequence so we had to ensure the CG whips were tracked and timed perfectly to match up with the live action footage." The team also created a CG city, which is the backdrop for Prince Dastan's Avrat chase sequence.



© All *Prince of Persia* film images, Disney

D The digital city that opens the movie required huge amounts of resources

E The city of Avrat where the movie's main chase scene plays out

F The assassins drop from the clouds an fire digital missiles at the heroes

gather additional motion clips of rowing, disembarking troops and horses.

MPC's digital environment work was centred on two main locations; London and the beach setting for the French invasion and final battle. A combination of matte painting and CG projections were used to recreate the medieval city, which featured the Tower of London and included the original St Paul's Cathedral and old London Bridge under construction. The production's football field-sized set provided the starting point for MPC to extend vertically and laterally, and in postproduction alternate digital extensions were also created to reuse the set three times as different castle locations. Each extension was a montage of existing castles chosen by Ridley Scott and production designer Arthur Max. For the beach environment, MPC had to create cliffs that surround the location and were added to 75 shots. Once approved in concept, the cliff geometry was modelled using Maya and interchangeable cliff textures were projected depending on the lighting.

MPC was also responsible for creating the arrows for various sequences on the film. Blunt arrows were used wherever possible, but most shots presented safety issues so digital arrows were animated instead. Arrows were added to over 200 shots, with 90 per cent of these being handled by the compositing team using Shake and Nuke. MPC developed proprietary 2D and 3D arrow animation tools to assist with the volume of arrows required, which included automatically generating the correct trajectory and speed, and controls for oscillation on impact.

Prime Focus buzzes in

Over the course of four months, the film VFX division of Prime Focus in the UK delivered 150 VFX shots for *Robin Hood*. One of the main sequences involved creating CG bees for scenes involving Friar Tuck (played by Mark Addy). Tuck uses his bees to attack the dastardly French soldiers he's trapped in a building. The bees explode from their hives and swarm around soldiers who desperately try to swat them away.

Director Scott had very specific ideas for the scene and the team worked closely with him and VFX producer Allen Maris. Because the bees were swarming around, it was difficult to render them in layers, so everything was modelled in 3D and then tracked and match-moved using SynthEyes. Creating the entire environment in 3D made the rendering and compositing simpler and

© Imagine Publishing Ltd
No unauthorised copying or distribution

H More sophisticated effects and green screen compositing are used in the remake. There's still a sexy alien leader though

V – The Visitors

Cast your mind back to the 80s – permed hair and cheesy sci-fi. Yes, it was the story of the lizard aliens under human skin in *V*, the TV series, here known as *The Visitors*. ABC in the USA brought the series back last autumn. In the UK, you can catch *V* on Thursday nights at 10pm on satellite TV channel SyFy. The big difference between the original series and the new one is that out have gone the plastic models and ropey visual super-imposition effects and in has come CGI courtesy of Zoic Studios in Vancouver and Los Angeles. *V* is filmed in Vancouver anyway, where more than 20 Zoic artists deliver green screen and virtual sets. Additional visual effects in *V*, including the series' signature motherships, were executed at Zoic's studio in LA.

Mike Romey, pipeline supervisor at Zoic Studios, and his colleagues broke down a *V* script into two types of shots: close-up shots and establishing shots. The close-up, face-to-face shots represented 80 per cent of Zoic's production work, for which they wanted to use real-time rendering off the graphics cards. They tried Nuke's integrated renderer at first, but found they needed more, including specular highlights and ambient occlusion as Romey explained, "We installed MachStudio Pro and ATI graphics cards from AMD and the stats are really quite amazing."

Romey and his team established a test case centred on the Atrium virtual set that appears in two episodes of *V* to calculate the time difference between the traditional pipeline and the new pipeline with MachStudio Pro. These 17 shots contain 2,589 frames, rendered three times for a total of 7,767 frames. With no optimisation and having to recalculate the lighting for each frame, it took four hours per frame. Zoic staffers tweaked the set and were able to optimise the render time to one hour per frame.

"Our current big project is *V*," explained Romey. "We are doing a sizable amount of VFX, a few hundred shots per episode." New episodes employ a growing number of VFX and virtual sets, revealed Romey. "*V* is bulking up with more and more VFX shots, as well as virtual components and locations. It is a very exciting project and it's pushing our technology limits to the edge."

G *Friar Tuck, played by Mark Addy, about to bring a CG sting to the tale*

> "The difficulty was finding a happy medium where the CG was lit realistically, but where it was light enough to see the bees"
>
> **Steve Street,** senior VFX supervisor, Prime Focus

enabled the team to position everything correctly in the 3D space, though the lighting and sheer number of bees also made the scene more challenging.

"The general mood of these shots is quite dark but also features some stronger shafts of light within the room," said Steve Street, joint MD/senior VFX supervisor, Prime Focus Film VFX. "The difficulty was finding a happy medium where the CG was lit realistically, but where it was light enough to see the bees. As the bees had to pass through the shafts of light, the extra lighting had to be very subtle. We also had to deal with several thousand bees, so motion blur was critical. We ended up having to add a lot of hand-animated bees into the foreground... to add detail where the simulation wasn't good enough on its own."

Prime Focus completed a number of other shots on the film, including designing more than 40 additional bee shots, creating CG arrows and swords for battle scenes in which people were stabbed or shot, as well as crafting matte paintings, green screens, fire and other FX additions.

© Imagine Publishing Ltd
No unauthorised copying or distribution

Everything for Free

With most 3D packages costing a tidy sum, David Crookes looks at the software and resources you can grab at no cost

© Imagine Publishing Ltd
No unauthorised copying or distribution

» Reaching Out (left)
This image was created by Soenke Maeter using Blender and GIMP
www.visual-noise.org

When you look at most industry-standard packages – the likes of Maya and 3ds Max – aside from the fact that they are wonderful tools which enable you to produce outstanding work, one other factor is stark: they are hugely expensive applications.

With the western economies only just out of recession and times remaining very tough indeed, it is often difficult to justify spending hundreds of pounds, especially if 3D art is not your full-time job. The good news for hobbyists and semi-professionals is that you don't always need to splash the cash in order to get good results. There are many fantastic packages available to download from the internet for completely free and there are also many resources to be had for nothing.

Before we look at the cream of these packages, it is also worth pointing out that some of the expensive industry apps have free trials available. You can get a 30-day trial of Maya and 3ds Max from **http://usa.autodesk.com**. Of course, if you want to continue producing 3D after that trial period, you'll have to stump up the cash. If that's not currently an option, you might want to take a look at some of the packages we're about to discuss.

» Woodland Dreams
A tranquil forest scene created by Jugster using DAZ Studio 3

DAZ Studio 3

Supplier DAZ Productions
Website www.daz3d.com/i/software/studio

Although you can purchase an advanced copy of DAZ Studio for $149, the free version is incredibly feature-packed and it's a perfect way to create, pose and light models, providing a more than capable alternative to Poser, the program's obvious rival.

DAZ Studio came into being five years ago so it has had sufficient time to build up a community. Not only that, but it's possible to grab hold of a whole range of free content. Indeed, DAZ is now offering all of its base models at no charge and that's on top of existing free content. As you would expect, there are paid-for figures too, but if you're really on a budget, you can get away with not opening your wallet at all. At the very most, you can spend relatively little.

The Advanced version adds, among many other features, the Figure Mixer, which lets you blend two figures together. You also get greater control over renders. But if you're not overly fussed with this option, then you can still pull off some adventurous angles and poses.

French artist 6R uses DAZ Studio to create educational software for use in his day job as a teacher. "Thanks to the ability to create a figure skeleton and edit joints and so on, users can see how great and easy it is to have a character in any pose and direction, which is very important for games," he tells us. "Users must also understand how to use one or two lights to create nice renders and it's also very important to be able to play with the surfaces and colours to change the texture. It's a great, well-rounded package."

Mae d'Agua in Lisbon, Portugal, modelled using Google SketchUp by artist Rafa

Google SketchUp 7

Supplier Google
Website http://sketchup.google.com

Google SketchUp 7 lets you create and modify 3D models, which can be added to the popular Google Earth program. It's an easy package to learn and most people will be building structures within minutes. In fact, it's so helpful to novices that an animation will show you how a tool works when you click on it.

SketchUp was developed by @Last Software and made its debut in August 2000. It was billed as '3D for Everyone' and won awards for its user-friendly design. The firm was bought by Google in 2006 and, soon after, a free version was announced.

It's essentially a stripped-down version of the paid-for product. You can export 3D to DAE, SKP and the KMZ Google Earth format. Screens can be saved as BMP, PNG, JPEG and TIFF. Additionally, you can access a wealth of textures. As you'd expect, you can also search Google for models that can be quickly imported into the SketchUp 7 program and worked on.

Advanced users may become frustrated at the lack of power, but that would be missing the point – it's a good package to play with and knock around ideas quickly, ideal for producing concepts ahead of getting your teeth into a major project.

If you've just picked up this magazine because you want to start playing around with 3D, however, then this would make a great place to start. There's a lot to be had from this app.

> "There are many fantastic packages available to download from the internet for completely free and there are also many resources to be had for nothing"

© Imagine Publishing Ltd
No unauthorised copying or distribution

» ***Steampunk Nemean Lion***
American artist Kevin Hays created Steampunk Nemean Lion using Blender and Photoshop for the Steampunk Myths & Legends CG challenge

Seamlessly working

As if to outline just how user-friendly Seamless3d has become since it was first launched in 2001, Alain Dumenieu, a 58-year-old art teacher, uses the package to introduce 3D to his 12-15-year-old pupils. Based in Lyon, France, Dumenieu says the improvements made to the app over the years persuaded him to use it.

"I like the smooth way the graphics form and the way it lets you work with colours," he says. "It is possible to build some very original and beautiful pieces of art. I know that using it, I could get artwork that I would not achieve using other software in the same timescale."

He continues, "When I started to use Seamless3d in 2002, it was very difficult, but after several months, the package, with many tweaks, was made easier. The good thing about Seamless3d is that there are good tutorials and demos available."

Dumenieu is also an experienced user of other packages including 3ds Max, SketchUp, Vivaty Studio and Internet Space Builder. "Of all of those, working with Seamless3d is the best for me," he reveals. "I teach two courses a year and it's great to give the children the opportunity to learn 3D. It helps that Seamless3d is free as we can use it on the machines in school. I've always been very impressed by the work the children produce."

Seamless3d

Supplier Graham Perrett
Website www.seamless3d.com

Seamless3D is an application geared towards people who wish to make 3D animated movies. It also allows for the creation of animated models for real-time graphics.

The application was made available as a C++ library back in 2001. Since then, a graphical user interface has been added and that has produced a 3D modelling app which has, over time, become much more user-friendly. Novices will therefore be able to get to grips with it – something they may have struggled to do in the program's initial stages.

That said, Seamless3d is not particularly aimed at 3D beginners – it is packed with advanced features. The program allows for NURBS modelling in order to create seamless organic models. There is NURBS control point animation for the making of 3D movies. The program allows artists to manually optimise polygons on a NURBS surface and model shapes can be modified even after the polygons have been optimised for real-time graphics.

Seamless3d both competes with and supports many different 3D applications and platforms including Second Life, VRML/X3D, Maya, 3ds Max and Blender. It is more NURBS-based than Blender, although its output can be rather abstract.

Blender

Supplier The Blender Foundation
Website www.blender.org

One of the best free 3D packages is Blender. It started life as a commercial product and it has a strong user base with many professional companies using the software for a wide variety of purposes from illustration and animation to compositing and interactive design. It is also used as a 3D modelling tool for the creation of games (there's a game engine included).

Blender is available to download for Windows, Mac and Linux. It's aimed at a wide audience, including professionals, students and hobbyists, but some people find the non-standard user interface off-putting. It's certainly worth persevering though, because when it comes to modelling, it's very strong, not to mention fun. There are loads of 3D objects including NURBS, metaballs, vector fonts, Bezier Curves and polygons, and it has excellent UV mapping too.

Similarly, animators will find Blender a great download. Character animation is much improved in today's version, compared to the daunting feel of previous iterations. Animation constraints are powerful and getting to grips with the features of the function editor window will reap substantial rewards, enabling all of us to mix and edit animations to perfection.

3DPlus 2

Supplier Serif
Website www.freeserifsoftware.com/software/3dplus

3DPlus 2 is a simple 3D art program that aims to take much of the work out of the artistic process. Wizards help you along and it's possible to create logos and web animations with ease.

The whole package is aimed squarely at those who have little to no experience of 3D art. The results are not always of a professional standard, but a lot of that will come down to your ability to work with the program.

It offers colours, objects, materials, patterns and textures and the website also provides tutorials. But Serif is really geared up to trying to flog you the enhanced ImpactPlus 4 app for £9.95 and, as such, many of the best features are held back.

© Imagine Publishing Ltd
No unauthorised copying or distribution

Anim8or

Supplier R. Steven Glanville
Website www.anim8or.com

Anim8or is designed for newcomers to 3D modelling and animation. It includes a fairly powerful modeller, but the toolset is relatively basic which makes it easier to learn than a program with hundreds of choices for each screen.

The program is used by dozens of schools worldwide and it even runs well on older computers. And yet, it is feature packed. It offers interactive Surface Subdivision modelling and polygon tools. It has a scripting language in which users can add new parametric shapes as plug-ins and exporters. It has skinning and animation sequences, a blindingly fast GPU renderer, a fast scanline renderer and a high-quality raytrace renderer for movies and stills.

Of course, you would never replace a higher-end package with Anim8or. That said, the program's author, R. Steven Glanville, says professionals do use the package to work out ideas or make quick models. In terms of market position, Blender is its rival, but only loosely. Anim8or is simply a good 3D introduction, if not for yourself, then a friend who perhaps wants to see what all the fuss is about.

AutoQ3D Community

Supplier AutoQ3D
Website www.autoq3d.com

AutoQ3D Community is available for Windows and Linux and it's intended to be an easy-to-use and fast software package to design 3D models or technical drawings. Aimed primarily at engineers, architects and students, it's simple to get to grips with, uses low hardware resources and offers DXF support.

The package is great for newcomers, offering a quick way to learn 3D concepts and finish designs. Experienced users will find it even easier to use because it uses commands similar to AutoCAD.

Ayam

Supplier Randolf Schultz
Website http://ayam.sourceforge.net

Ayam is a 3D modelling environment for Pixar's core rendering technology, RenderMan. Just that fact should tell you that this powerful package is not for beginners.

It offers lots of NURBS modelling tools and the ability to import and export NURBS to and from many formats. There are parametric NURBS and a scripting interface. Ayam offers experienced users lots of tools and control and because it has good importing and exporting ability, it blends well into many workflows.

Ayam is not for the novice. You really will have to read up and understand what you're getting into, but the results can be impressive

This wonderful harbour image was produced with trueSpace by Paulo Correia

trueSpace 7.6

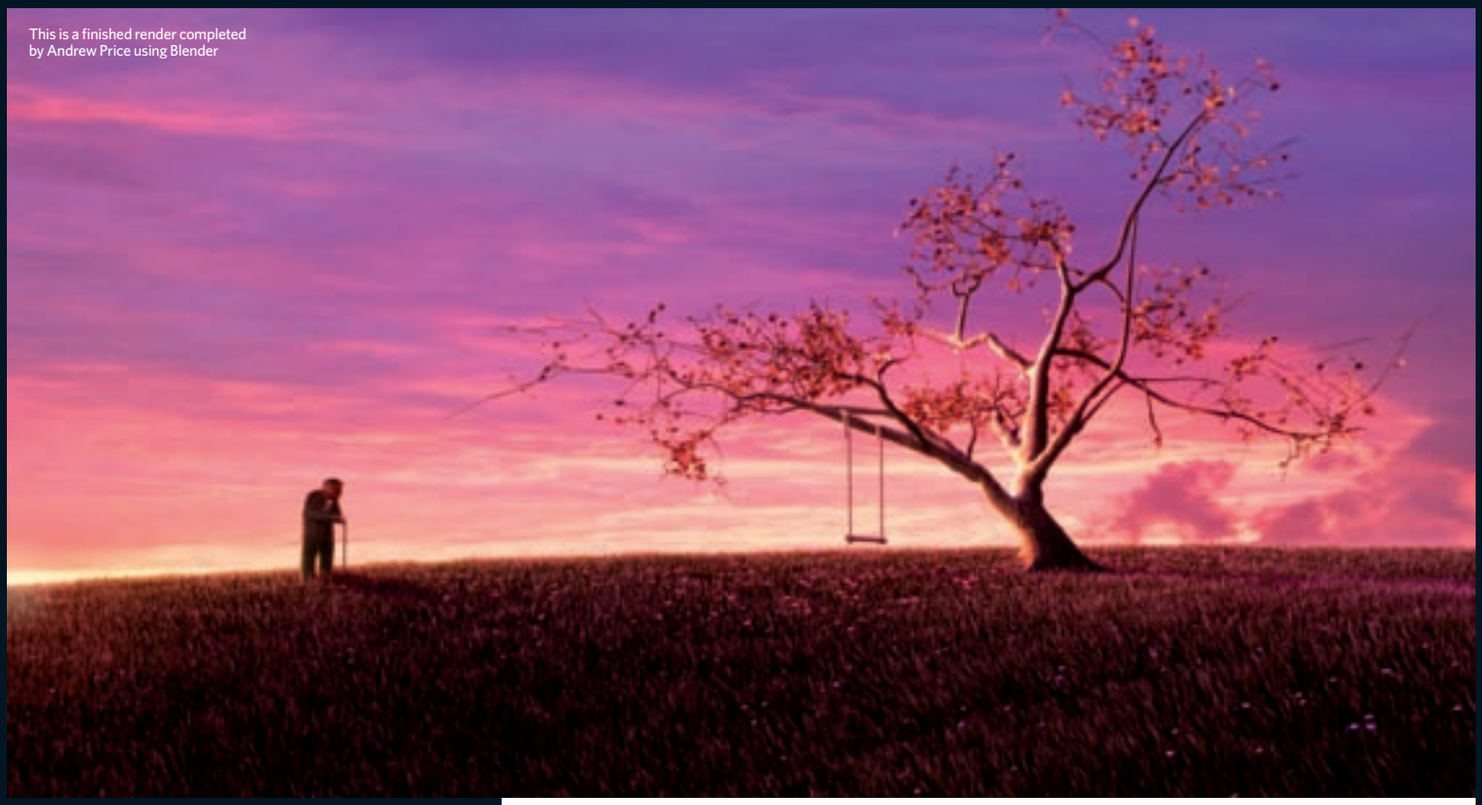
Supplier Caligari
Website www.caligari.com

As a fully-featured 3D app, trueSpace 7.6 is a program well worth trying. But beware – developer Caligari was taken over by Microsoft in early 2008 and, by May 2009, it was officially discontinued. Even the forums on the package's website don't load any more.

If that doesn't put you off, then trueSpace is worth considering. You can import and export models on the 3DS and COLLADA formats and there are more than 400 tools under its bonnet. In terms of rivals, Carrara is closest.

Working closely with Photoshop, trueSpace supports real-time cloth, character animation and also works well with hair and fur. There are loads of textures and objects at your disposal and the rendering is spot on with all of the transparencies and soft shadows you'd expect.

© Imagine Publishing Ltd
No unauthorised copying or distribution



This is a finished render completed by Andrew Price using Blender

» *Lady With Candle*
This regal woman was created in Blender and Photoshop by Zoltan Miklosi

The Blender Guru

Andrew Price has been using Blender for more than seven years. In fact, he is so *au fait* with the program that he recently released an ebook about the program.

Price, who lives in Brisbane, Australia, runs the website **www.blenderguru.com** on which he creates tutorials related to the package. He loves the fact that it is free. "There are no annual subscription costs, no render farm node costs, everything is available open source," he says.

He points to new versions of the software being released daily and he says Blender is the perfect all-in-one graphics suite. He adds: "It includes an image editor, compositor, video editor and other tools, all within the software."

Price started to use Blender when he was 15 years old. He said he wanted to create cool looking 3D cars. But now he understands the real power of the application, he uses it to land jobs as a freelancer, as well as create educational products.

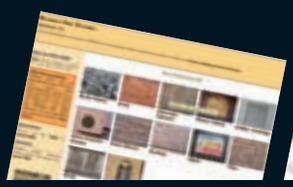
"The only other programs I use in conjunction with Blender are Photoshop for texture editing and Premiere for advanced video editing," he explains.

However, it's not all good. Price bemoans the program's instability at times and says documentation is severely lacking. There is no on-demand telephone support service either. He does have some advice for novices, though.

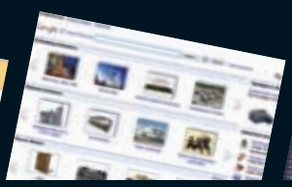
"Newcomers to the software should definitely get to grips with the interface first and find out where everything is located. Start with small projects and build up to larger ones."

We ask if he has any tips to get the most out of the package. Unsurprisingly, he does. "Don't be afraid to experiment! There are tons of hidden features in Blender, so the more you poke around, the more you will get out of it."

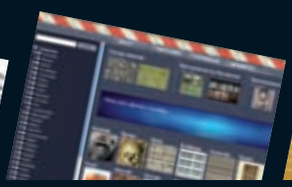
Free resource sites



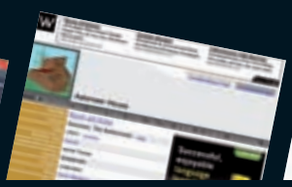
http://mayang.com/textures



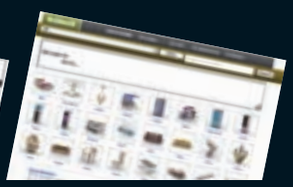
http://sketchup.google.com/3dwarehouse



www.cgtextures.com



www.greatbuildings.com/types/models/models.html



http://archive3d.net

© Imagine Publishing Ltd
No unauthorised copying or distribution

Free resources

It's sad that trueSpace is no longer supported when you see art like this by Kheang Chrun

"Why spend ages creating your own models from scratch when you can download and adapt pre-existing ones?"

If you already use a paid-for package, you can still save yourself a fair whack by using one of the many free online resources. These enable you to grab textures and models to use and adapt for your own work. There are also lots of great websites, which help you get the most out of your package.

Many websites cater for specific applications. Andrew Price's Blender Guru (**www.blenderguru.com**) is an excellent collection of tutorials, interviews and advice. Google SketchUp users can do a lot worse than to head to Google's forums (**www.google.com/support/forum/p/sketchup**) or look for free models at **http://sketchup.google.com/3dwarehouse**. And, as previously mentioned, DAZ Studio users can benefit from a host of free models (**www.daz3d.com**).

By making use of resources such as these, you can save yourself a lot of time and energy. Why spend ages creating your own models from scratch when you can download and adapt pre-existing ones? Better still, they're ideal for low budgets and meeting those all-important deadlines.

One thing is clear. Using these sites is not cheating and neither are they unprofessional. All manner of industries make use of pre-made 3D models, including film, gaming and architecture. All you have to do is check the terms and conditions of any website you use. For example, sometimes you are banned from using free 3D models in commercial work and you don't want to fall foul of any copyright violations.

For textures, there are similarly many wonderful online resources. One of the best we've seen is **www.mayang.com/textures**, which has lots of textures on an architectural theme as well as nature and fabrics. You are restricted to downloading 20 textures each day and that's per IP address, so be aware of this if you're part of a bunch of students logging on from the same university computers. There is a paid-for option (£25 for 3,800 textures on DVD) but, chances are, you won't need to bulk download. And as long as you've made some artistic effort towards the end result, you can use them for anything, from movies to games.

CGTextures (**www.cgtextures.com**) is also awash with resources. It bills itself as the world's largest free texture site and the site certainly looks professional. The good news is its textures can be used for both private and commercial projects and they can be incorporated into games, 3D models, movies and printed media. As long as you don't sell the textures in an unmodified form or bundle them with software, you're free to use them as you wish, by and large. As with all of these sites, be sure to check the specific terms.

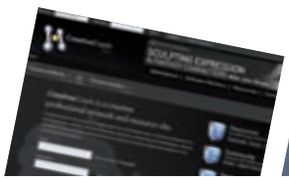
Another website worth considering is CreativeCrash (**www.creativecrash.com**). Here you can download some very high-quality 3D models, textures, scripts and plug-ins. Each has the facility for user ratings so you can see whether or not an asset is worth its salt before you download.

All of these sites can be used for a multitude of packages from the free ones to the paid-for. But there are specific sites for some commercial packages and if you've ever used mental ray (the rendering app used in films such as *Hulk* and *The Day After Tomorrow*), then you simply have to log on to **http://mymentalray.com**, which is a lovely site dedicated to the program that comes complete with a range of galleries, downloadable material and bustling forums.

It may also interest you to know – particularly if you like creating models with a space theme – that NASA has a wide range of 3D resources (**www.nasa.gov/multimedia/3d_resources/index.html**), including 3D models, images and textures. Most are available in 3DS format, although two are in LWO or FBX. Images and textures are in JPEG and TIFF formats. They're all completely in the public domain, just so long as you don't make out the products you use them on are in any way endorsed by the US space agency.

And all this is only the tip of the iceberg! The website, 3DTotal (**www.3dtotal.com**) has a whole section of free stuff with some particularly excellent road surface textures. TurboSquid (**www.turbosquid.com**) has around 300 items ready for download, though the quality can vary. If you're after models of buildings, then try GreatBuildings (**www.greatbuildings.com/types/models/models.html**) for hundreds of free assets. If you register, then Archive3D (**http://archive3d.net**) will offer you more than 20,000 free 3D models with lots of in-home resources.

Using free resources will help you use your time more efficiently, ensuring you concentrate only on the important details rather than on items which you can obtain elsewhere. And if you feel guilty just downloading other people's models and textures and you have already created your own, then why not consider allowing others to use them for free? Don't forget too that the disc which comes with this very magazine also carries some great models and textures. So, stop counting the pennies and have some CG fun for free.



www.creativecrash.com

www.3dtotal.com

www.turbosquid.com

http://mymentalray.com

www.nasa.gov/multimedia/3d_resources/index.html

© Imagine Publishing Ltd
No unauthorised copying or distribution

Lynette Clee talks to Olivier Ponsonnet, a community favourite, who creates videogames by day and moonlights as a CGI character portrait artist by night

Timeless beauty

Name Olivier Ponsonnet
Job title 3D artist
Personal website http://re1v.free.fr
Country France
Software used 3ds Max, ZBrush, Photoshop
Expertise Real-time environments and characters
Current employer Asobo Studio

> "I try to create timeless illustrations. It sounds pretentious but that's really what I try to achieve. I mix many inspirations from different eras so that my characters do not look too contemporary"

Olivier Ponsonnet specialises in real-time environments and characters

Olivier Ponsonnet is a renowned master of the CG portrait in the 3D community. In stark contrast to the stunning portraits that don his portfolio, when he is not creating intriguingly beautiful characters that capture our hearts and inspire our own creative pursuits, he is working as a 3D artist in the videogames industry. By day, he creates real-time characters and CG environments, from level design to the final visuals and yet, in his spare time, he still finds the motivation to produce wonderful portraits like these featured here.

Having worked in videogames for around four years now, after what may seem an unexpected educational background for such an aspired 3D creator, Olivier has never regretted his decision to become a CG artist. He has told 3D Artist that he will never tire of creating, and we certainly hope that he doesn't. With an ever-impressive portfolio and a work-in-progress underway, Olivier will continue to inspire with his unique representations. Something of an enigma in the CG community, 3D Artist wanted to find out more about the man behind the hauntingly beautiful faces...

3D Artist: *Can you tell us about your education and how it helped set the foundations for your career?*
Olivier Ponsonnet: I'm actually self-taught. Before working in videogames, I studied Computer Science at university. While I was studying, CG was my passion and I was doing it in my spare time. At the end of my course, I chose to work as a CG artist and continued practising as a hobby in my free time. I might not have directly done art or CG as part of my degree, but I think my studies helped me a lot in understanding the basic functions from a technical point of view; from how lighting works, to how it's actually simulated and rendered, etc.

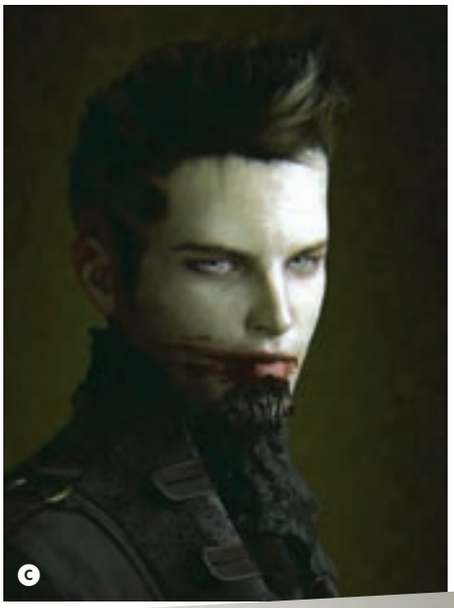
When I was younger, I also had drawing lessons for some years, practising with many types of media, such as pencil, charcoal, acrylic, silk painting and so on – this all helped me to develop my artistic skills.

A *Flame*
"The ornamental elements provide extra narrative and encourage the viewer to look beyond the beauty that is portrayed"

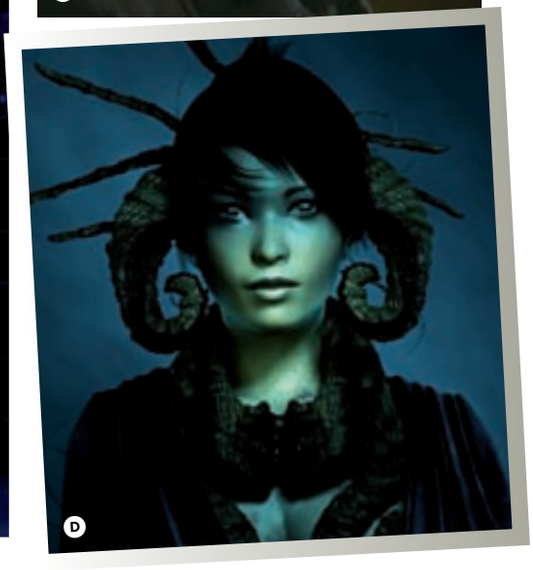
© Imagine Publishing Ltd
No unauthorised copying or distribution

© Imagine Publishing Ltd
No unauthorised copying or distribution

B *A Fairy World*
"Created for a French contest, *A Fairy World* was inspired by butterflies, fireflies, royal clothing and coleopters"



C *Vlad*
"Created as a sharp face with clean features; contrast was given by adding a red blood splat to the mouth"



D *Obsidian Eyes*
"This character's beauty is deceiving; you are pulled in by her stare, but the dark elements warn you away"

3DA: *How exactly did you teach yourself 3D? How did it start, where did you get your learning resources and how steep was the learning curve?*
OP: Well, it was pretty simple. I was 13 years old, I liked to draw and I had a computer so I just tried to merge these two hobbies together. That's why I bought my first 3D software: Voxel3D. It didn't offer many possibilities, but I was really happy with it. A couple of years later, I started using Amapi. I could create more complex objects, but the rendering part of this software was extremely limited. That's why I turned to 3ds Max 1.0. In the beginning, I was just using it as a renderer with imported objects from Amapi, but I ended up using 3ds Max for nearly all stages of my work.

To start with, my only resources were books. I bought two or three of these huge books describing every single 3ds Max function. I learned the software from the literature and obviously by practising. Later, the internet really helped me to improve my skills with its CG artist communities. My learning curve was pretty long: I began 3D quite young but I seriously practised for about ten years, accumulating both the technical and artistic know-how to allow me to create what I do now.

> "…even when I create environments, I can't do this without adding a character in the scene; I'm not interested in creating a picture without any characters"

3DA: *Your portfolio contains a wealth of stunning portraits – realistically rendered, but also illustrative in style. Can you talk us through the work involved in the creation of one of your characters?*
OP: I do these portraits during my spare time. My goal is always the same and pretty simple: to create a beautiful character. To achieve this, I focus on both the technical and aesthetic aspects. I work hard at the technical part (rendering, lighting, shading, etc) to make a believable character. I do like to test the latest revisions of 3D software with their brand new tools and features to get even more possibilities and this technical aspect remains a means to achieving the aesthetic part. Overall, I'd say I pay way more attention to the aesthetic aspect than the technical one.

I always try to create characters with some kind of timeless beauty. I avoid an over-contemporary look; I usually prefer more classical ones. Maybe this is because I just hope my artwork won't look too old too fast.

3DA: *What are the tools of your trade in terms of hardware and software, and how are they important to your workflow and content creation?*
OP: I mostly use 3ds Max from the first poly to the final render. I sometimes use ZBrush when I want to create complicated organic objects, but most of the portraits I create are modelled with 3ds Max solely, using polygon modelling and subdivision surfaces.

© Imagine Publishing Ltd
No unauthorised copying or distribution

Key Project 1

Opal Child

"When I create a picture, a source of my motivation and inspiration also comes from other CG Artists. I saw a picture representing a girl with a simple bird by a Korean artist. It was just great. That's what inspired me to create this child and his pet.

I really like this picture because it's the only portrait I've done with two characters. It was quite challenging for many reasons: the first because the pet is a monkey and creating animals with fur is not my speciality. I also wanted the monkey to have something in the eyes as deep as the main character. Creating a child was also challenging. I tried to make a pure face with clean facial features, but not something completely smooth; I wanted to give her personality.

© Imagine Publishing Ltd
No unauthorised copying or distribution

E

F

For texture painting, I use Photoshop with a Wacom tablet. I also use this software for compositing and postproduction. My hardware is quite common: Intel Core i7 Processor, 6GB RAM, ATI 5850 video card, and dual monitor display.

3DA: *How long does it generally take to complete one of your character portraits, from concept to final 3D illustration?*
OP: Actually it varies a lot. I'd say from two weeks to a couple of months. It really depends on many things. It firstly depends on my inspiration or motivation. As you know, I work as a CG artist in a videogame studio. All the portraits I do are non-commercial images created during my spare time, so it's not always easy to find motivation after a day of work. The duration of the creation process also depends a lot on the quantity of things to create. Making ten characters is always going to take longer than making one. That's also why I like doing portraits. I know I generally don't have much time to create my illustrations, which is why I prefer to focus on something specific like a single face, and try to improve it as much as I can.

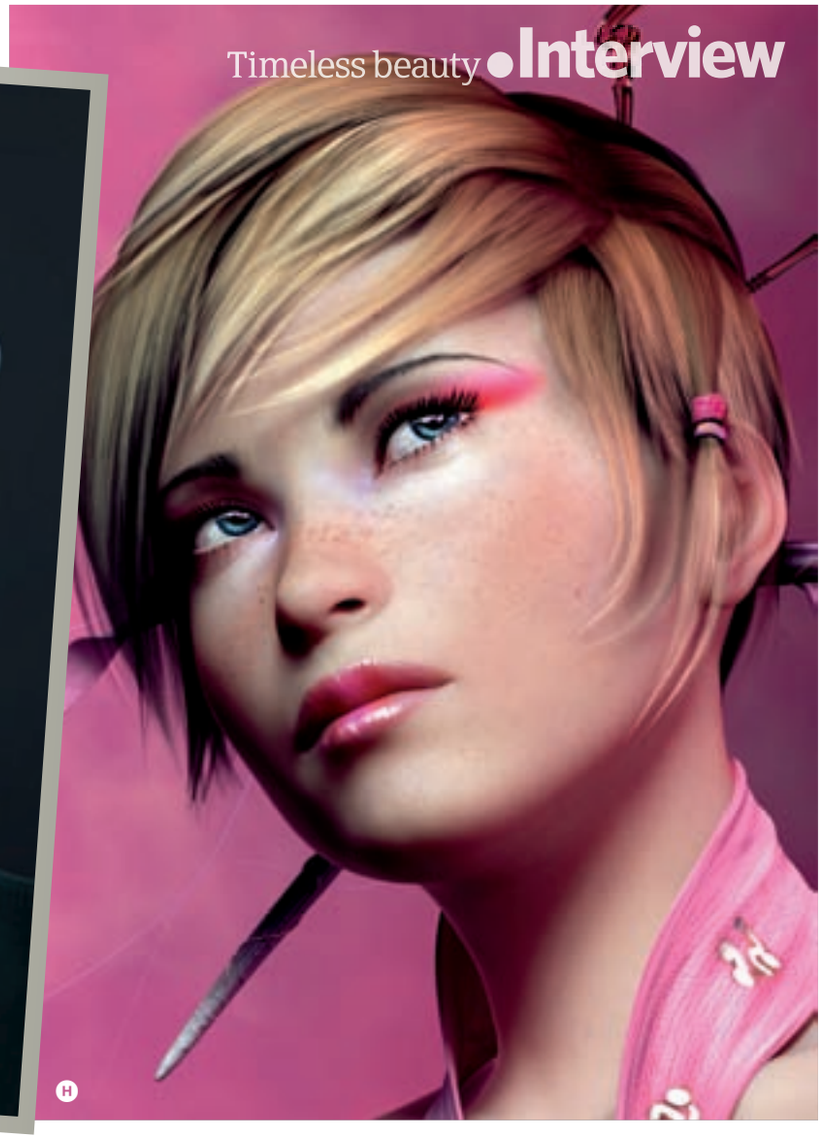
3DA: *How long have you been evolving your character creation techniques and how would you say they have changed over time with the various advancements in 3D software?*
OP: I've been evolving my character creation techniques for about eight years. Actually, 3D software advancements always make character creation easier in terms of technique: we now have realistic lighting, soft shadows, nice skin aspects with Subsurface Scattering – all of these tools make the technical part easier. But in my humble opinion, the most important part remains the artistic one. I think that's what really makes my latest creations different from my first ones and partly why, I guess, I create better characters now than I did eight years ago. The best way to improve is quite simple though and not really magic: observation and practice. A lot of practice!

3DA: *When it comes to rendering, what passes do you render out and why are these so important to the final look of your 3D illustrations?*
OP: I usually don't use many passes. I try to keep my rendering pipeline as simple as I can. I use passes when I don't have a choice. For example, when I create a character with hair, I have to use passes. I render hair and its shadows using the 3ds Max Scanline renderer – because it's way faster than using mental ray primitives and gives smoother results. I use mental ray for everything else. I then create three passes: one for the main render, rendered with mental ray, and two for the hair – the hair itself and its shadows – rendered using the Scanline renderer.

3DA: *In terms of postproduction, how much work is done on your 3D renders to take them from raw render to final illustration?*
OP: I only do pure postproduction in Photoshop. I mean, I don't add any new elements, objects or details to my pictures at this stage, nor do I paint anything on them. I usually apply Color Balance and saturation filters to my illustrations to adjust the colour scheme and the mood of the picture. I also add Noise, Chromatic Aberration and Depth of Field (using the Z-Depth from 3ds Max) to remove the raw look of the 3D render.

3DA: *For you, what is the most important part of the creative process when producing one of your beautiful, elegant characters?*
OP: I think the most important stage is modelling the face. I can spend hours

© Imagine Publishing Ltd
No unauthorised copying or distribution



moving vertices until I get some kind of harmony. I try to get a nice looking shape even without advanced lighting, with default lights in the viewport. I don't try to push my render further until I have an aesthetically interesting face. Obviously, nice lighting and shading will also help to achieve a nice looking character, but the modelling really remains essential in my opinion.

3DA: *Your characters are all highly unique, seeming to pull elements from a variety of cultures and stories. Where do you seek your inspiration and how important is storytelling in your work?*
OP: As I said earlier, I try to create somehow timeless illustrations. It sounds pretentious but that's really what I try to achieve. I mix many inspirations from different eras so that my characters do not look too contemporary. As I want to create something believable, I often use classical or traditional clothes from many cultures as bases. I usually get this inspiration from classical painting books or from history of dress books. I also get inspiration from contemporary artists, from comic books, or simply from people I see in the street – everything can be a source of inspiration.

> "Obviously, nice lighting and shading will also help to achieve a nice looking character, but the modelling really remains essential in my opinion"

3DA: *Your portfolio also demonstrates great skill with environment creation, particularly in the context of sci-fi and fantasy. With such a strong and varied skill set, why do characters capture more of your attention?*
OP: There are many reasons for that. The first and the most important is personal taste: a portrait talks to me a lot more than an environment. Second, even when I create environments, I can't do this without adding a character in the scene; I'm not interested in creating a picture without any characters. As I don't have much time to create my pictures, I prefer to focus on characters.

3DA: *Your conventionally beautiful characters are often portrayed with a gothic and macabre twist, with recent works having turned darker. What does this stem from, and where do you see future works going?*
OP: Well, I don't know. I use classical paintings as an inspiration. I like the aesthetic look of classical works, like Tiziano Vecellio's portraits work with their bright skins, dark clothes and black

E *The Fall*
"Qualëphantus are creatures that travel from one galaxy to another, feeding on every life form they find..."

F *Moon Key*
"Aiming for a charming and elegant portrait – not realistic – all of *Moon Key*'s textures were hand painted in Photoshop"

G *Mr Bone*
"In contrast to my other works, *Mr Bone* started as a simple ZBrush test. The result was rendered in 3ds Max"

H *Pink Sugar*
"*Pink Sugar* was something quite different, purposely made using a different colour scheme and blonde hair"

© Imagine Publishing Ltd
No unauthorised copying or distribution

backgrounds. Maybe as I'm getting older, I also like more sober colours… I don't know. I just try to make things that I like. And as I don't know how I'll evolve as time goes on, I can't really say where my future artwork is going. But I think that's what makes the journey more interesting.

3DA: *Giving life to lifeless digital content is a skill all in itself. How do you give your characters the souls that we can clearly see in any of your illustrations?*
OP: To give them life, I first try to make them believable. That's why I pay a lot of attention to clothing design, anatomical details, rendering and so on. When I have this base, two areas need more attention: the eyes and the mouth. Those parts are not that difficult to produce – I mean from a technical point of view. You just have to be careful about topology in these areas, but it's not that hard. The hardest part is to get something beautiful and natural. It's a very subtle process and one of the most interesting parts of the creation – especially in the eye area, where you have to find the perfect balance between eyebrow shape, the eyes' curvature, the position of the eyelids and so on, in order to create that lively and expressive look.

3DA: *With constant advancements in technology helping more people than ever create realistic looking characters, how do you keep an edge over them?*
OP: Well, I'm not sure. Maybe it's just experience and practice. I mean, yes, it's easier to create realistic looking characters technically, but it's always difficult to create original and unique characters. My aim is not exactly to create realistic characters; I try to give them something more. I don't try to reproduce what you could actually shoot with a camera.

3DA: *How different is your professional work to your personal portfolio and how does this balance out?*
OP: My personal portfolio is completely different from my professional work. My personal portfolio is mainly composed of portraits – simply because that's what I like to make best. My professional work includes level building, environment creation and, more recently, real-time character creation. This is very different from my personal creations and how I find motivation to create CG after a day's work.

3DA: *Can you tell us what you're currently working on at the moment, and where the inspiration for it has come from?*
OP: I'm working on an underwater scene – a kind of mermaid portrait. However, I don't want to create a happy mermaid with shiny scales and a shell bikini. I'd like to make something closer to the original mermaids, something more elegant but also darker.

3DA: *How about your future plans; what can we look forward to seeing next, and what projects would you most like to work on?*
OP: I really don't know. I barely have time to create personal work, so I'd just like to finish my work on the mermaid, then think about what's next. It will most likely be another portrait. I could do portraits for the rest of my life and not get tired of them. I may also try to create some 2D illustrations. I might not always know what the next project will be, but one thing that is for certain is that I won't ever stop creating.

I *Inaë*
Made initially as a SSS test in 3ds Max, Inaë was continued and rendered in mental ray

J *Red Opium*
"A vision of a female vampire, *Red Opium* was created in 3ds Max 8, with all maps hand painted"

© Imagine Publishing Ltd
No unauthorised copying or distribution

Key Project 2

Cold Blue

The dress is based on a real dress I found in paintings representing Anne of Cleves. The original dress had more colour variety and a different colour scheme. I modified it to get something more sober and also a little more contemporary. The make-up matching the material colours is also there to break from the original classical look. The eyes are also interesting. The reflections are huge – completely exaggerated – but it really gives her something special, more depth. The composition and the pose are quite simple and don't distract; you just focus on the character's face.

© Imagine Publishing Ltd
No unauthorised copying or distribution

Step by step: Get that post-apocalypse look

Open Road 2009

Software used in this piece

LightWave 3D | modo | Photoshop

> Create a barren post-apocalyptic scene – featuring a Mad Max movie style vehicle – finished with a grungy concept art look

Waldemar Bartkowiak specialises in modelling and texturing

© Imagine Publishing Ltd
No unauthorised copying or distribution

Step by step
Easy-to-follow guides take you from concept to the final render

Artist info

Waldemar Bartkowiak

3DArtistonline
Username: mancubus

Personal portfolio site
www.mancubus.glogow.org
Country Poland
Hardware used Quadcore Q6600 2.7GHz, 8GB RAM
Expertise Waldemar specialises in modelling and texturing

Design inspirations

The style for the scene

01 **The idea is to** build a post-apocalyptic style car, like you might see in the *Mad Max* movies, or *Fallout* computer games. It needs to be rough, dirty, put together from different parts – look mean. Most of the parts need to be rusty, weathered and damaged, showing it has been built from junk and that it has a long history on the road. We chose the cliché setting – on some desert road, which highlights that there are few to no survivors left.

Texturing, Lighting

02 **For the base,** we used a combination of two popular pick-up trucks: a Dodge Ram and a Ford F-150. Using parts from both of them, the car was customised to make it less recognisable. Of course the car also needs custom tyres and a different engine that will stick out from the car body. We opted for a pick-up truck for the vehicle as it will be able to carry a greater amount of armour, fuel and equipment. Plus the survivors can load various objects/ resources, which they may discover in this unfriendly environment.

03 **You can't have** a post-apocalyptic vehicle without weapons. Militia in some countries use pick-up trucks as weapon bases/ fighting vehicles called 'technicals'. While looking for references, we found the big, mean Russian Kord machine gun that seemed perfect for the main gun. Then, you can go on to look for other details and references like rucksacks, fuel canisters, pieces of armour, etc. This research part is very important, and the amount of time you spend on planning your piece at this stage will definitely pay off later.

In this tutorial, the main goal is to create an image, which has the feeling of 2D art, but uses 3D tools. You can find a lot of shiny, brand new, realistic car renders out there, but we want this artwork to stand out from the crowd. We feel that concept art really complements the rusty pick-up truck in a post-apocalyptic environment better than any other style. To create the image, a combination of 2D and 3D skills will be used. The car will be modelled with a large amount of detail, using LightWave 3D and modo. We want to design a truck that looks as if it could actually have been built in reality, but give it an illustrative finish. For lighting, rendering and compositing, LightWave 3D will be used to match the background. To get the 2D feel, multiple passes will be composited and then combined with overpaint techniques, using photo textures, procedurals and hand-painted elements. Finally, all the layers will be composited in Photoshop.

© Imagine Publishing Ltd
No unauthorised copying or distribution

Artist showcase

Waldemar Bartkowiak

I'm a 3D Artist from Poland. I have a generalist background, which allows me to do a wide range of CG work from drawing concepts, lighting and animation to composition. My favourite areas of 3D art would be modelling and texturing. For my day job, I create realistic assets, but in my spare time, I like to create more stylised artworks, like this one.

Incident Zero **LightWave 3D, ZBrush, Photoshop, Fusion (2009)**
This is my admission for the Polish CGTalk contest. I tried to achieve a more illustrative look than a 3D render. The story behind it feels like a cheesy, B-class sci-fi movie. In a desert laboratory, while researching a new bioweapon, something has gone terribly wrong. A squad of special forces soldiers is sent in to rescue surviving scientists and to retrieve research data. I was trying to get a book cover/poster look

Greed **LightWave 3D, modo, Photoshop (2008)**
This is turntable sculpt from my demoreel called *Greed*. The life of a noble knight that fought many battles and monsters, completing numerous quests and dangerous tasks, finally comes to an end. He was defeated by his own weakness – greed. After slaying the monster and returning with the treasure chest, he gets stuck in the swamp. With the chest full of gold, he was too heavy to move, and starts to slowly sink in the swamp. Refusing to let it go, he dies from exhaustion, but still holding his treasure

Material surfaces

Adding textures and materials

04 **The texturing process** for this project was quite unique in that the decision was taken to hand paint most of the textures instead of using photos. We did use some pre-made textures (predominantly from **www.cgtextures.com**) for the base and to add a touch of realism, but the main part of the texturing was done using a Wacom Intuos 4 tablet. Start by painting the base colours for the various parts.

05 **After applying the** base colours to the parts, break them up with some procedurals. Procedurals add some variations to the colours and change the tones. Next, create a mask to get rid of the paint from the metal parts and to show the grey steel underneath; you want to achieve a weathered look. You can also add some grunge or noise to make it more interesting.

06 **Now, it's time** to add the rust to the plates. To get this effect, we used a combination of photos from CGTextures and hand-painted stains of darker rust. You want to end up with different variations and stages of decay for different parts. Don't forget to add rust to the rest of the metallic parts of the car. Try to keep the rust to the seams and on the most exposed areas where there is little to no paint, by using previously created masks.

07 **Next, make scratches** in all the metal textures. On the left side of this image, you can see the clear metal, while on the right, you can see it with a Scratch map applied. Paint all the edges with a grungy brush, and make them brighter than the rest of the surface. This enhances specular highlights, and also defines the shapes better. You can also paint drips onto the rusty surfaces under bolts, which combined with Ambient Occlusion, creates a great grungy look. You may need to paint extra highlights on the cloth surfaces to make the wrinkles more visible.

08 **The last part** of this stage involves painting dust textures. To do this, you'll need to use a combination of procedurals and grungy brushes. Try to add more dust on the lower parts of the car, and less on the top. The most dusty parts are, of course, the tyres, so they will need extra layers on the treads. We included quite a lot of dust to tone down the colours and make the car blend better with the background. Also, this is the time to add the important small details for the finishing touch – such as bullet holes, scratches, leaks, etc.

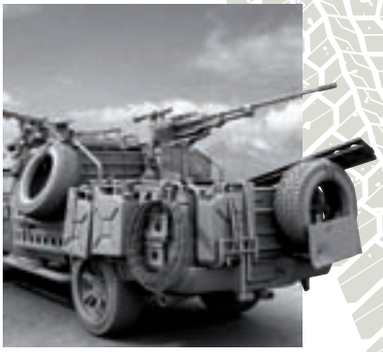
© Imagine Publishing Ltd
No unauthorised copying or distribution

Lighting the scene

Creating the environment

09 Before you start to work on the lighting, you need to find a fitting background. We did many tests with various photos and tried many angles to effectively blend the car into the environment. We also wanted to show the empty road to bring a sense of loneliness and isolation to the scene.

10 When happy with the final staging of the car, try to get the light to match the background and get the same ambient lighting on the car. Firstly work on matching the light angle and brightness, so you can then work on matching shadows. Try working with black-and-white images, so the colours won't be a distraction, and concentrate on the contrasting and corresponding shades of grey.



1 hour render time Resolution: 4,096 x 2,444

11 When you have the car angle sorted out and the strength of the light matching that in the environment, you can start working on the final composition. Don't worry overly about the environment itself at this stage, as you'll be heavily overprinting it later. In LightWave 3D, use Camera Projection to project the background image onto the ground plate to easily match the shadows.

12 Once the car is incorporated into the background, split the rendering into separate passes such as Occlusion, Shadows, Reflection/Specular, Color passes for different parts of the scene. By rendering everything separately, you give yourself more freedom within the composition. This is particularly important as we are going for a very stylised and unique look, which avoids a straight CG render feel. Combining and blending all of your passes in Photoshop is the key.

13 Once all your passes are rendered, work in Photoshop to combine them in the right way. At this stage, you can also start working on the background to give it a more painterly finish. We have painted some city buildings in the distance to add a little story to the image. Paint the car render itself to fix any errors and to increase the concept art feeling, while also trying different colour gradings to experiment with the mood.

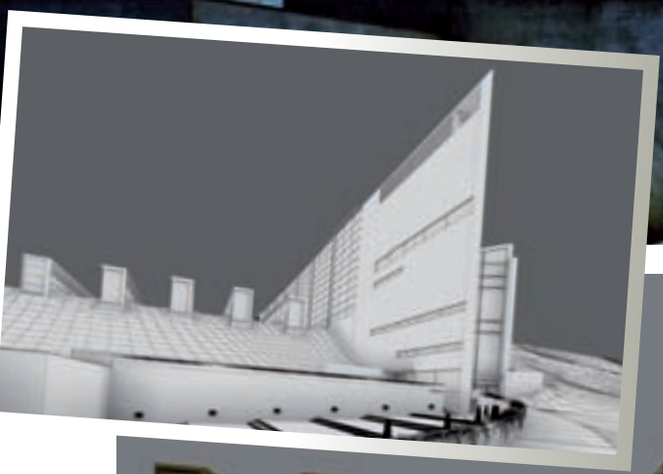
Modelling the scene

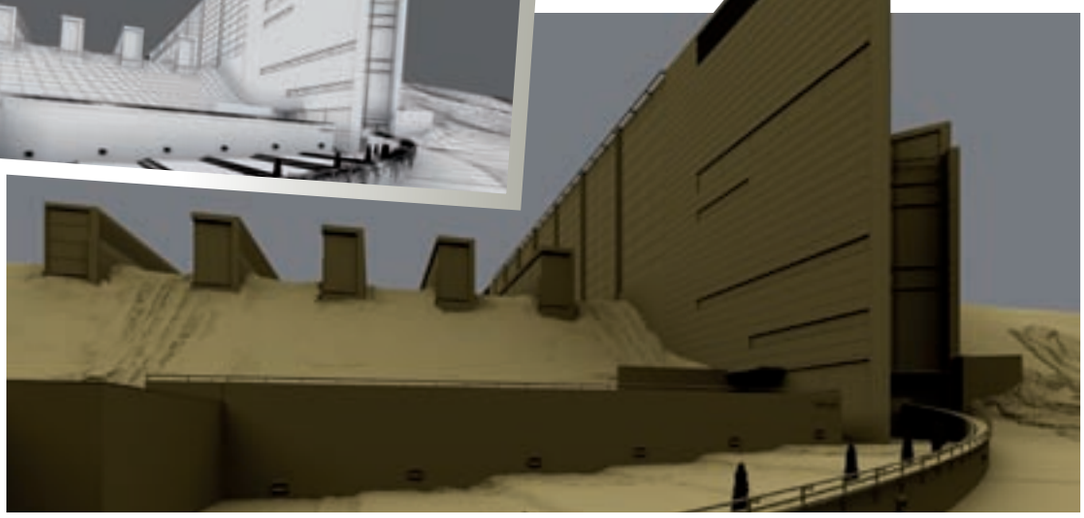
While modelling, the biggest challenge we faced was the placement of the details. We wanted to create the feeling that everything had a purpose and had been placed there for a reason. Knowing that the final object would be quite heavy, we started with a proxy model of the car and placed all the proxy details on it. The base car was modelled from two different trucks and later armour layers and details such as screws were added all over – modo's Mesh Paint tool is excellent for doing this. We modelled all the details as separate pieces (engine, rucksacks, guns, ammo boxes, etc) and replaced the proxy models with finished ones. The model ended up quite heavy, but with a highly detailed final result. Many polys could have been removed by replacing them with various textures (tyre thread, for example), but we wanted this model to be able to withstand close-up scrutiny.

© Imagine Publishing Ltd
No unauthorised copying or distribution

Step by step: Creating a stylish museum building

KUMU Art Museum 2010





> I was mesmerised by this museum some years ago and, ever since, I knew I had to do my own version of it in 3D

Viktor Fretyán specialises in architectural rendering

© Imagine Publishing Ltd
No unauthorised copying or distribution

Step by step

Easy-to-follow guides take you from concept to the final render

Artist info

Viktor Fretyán

3DArtistonline
Username: Radic

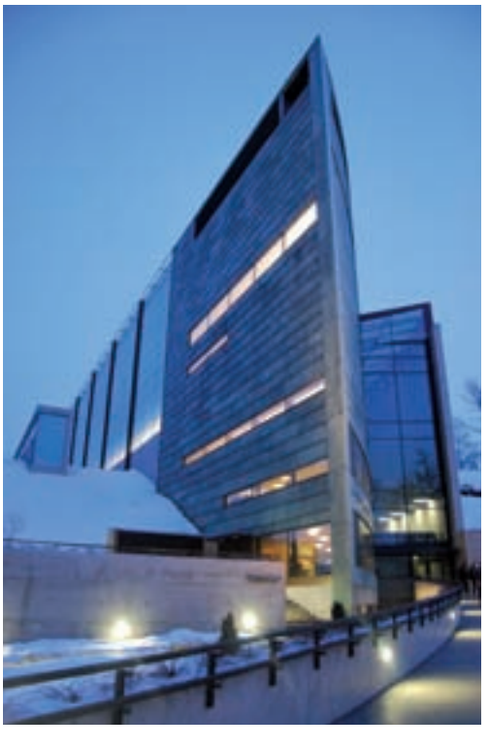
Personal portfolio site
radicjoe.cgsociety.org
Country Hungary
Hardware used
2 x Intel q9550, 8GB RAM
1 x Intel i7-860, 8GB RAM
Expertise Viktor's passion is architectural rendering. That's more or less the only part of 3D he considers himself good at

Software used in this piece

3ds Max | Photoshop | After Effects | V-Ray

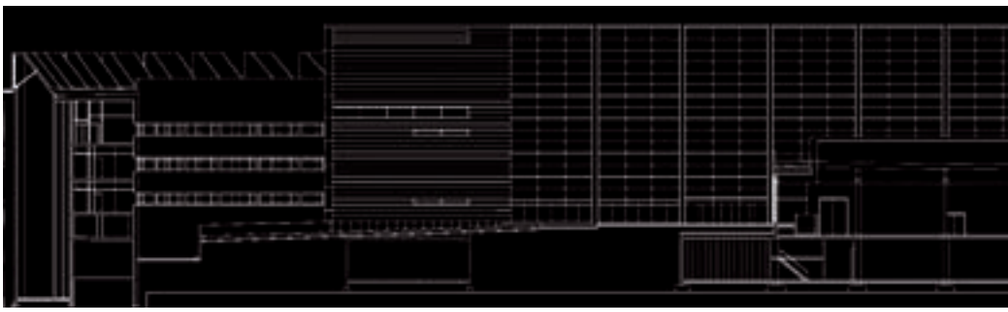
Design inspirations

The style for the scene

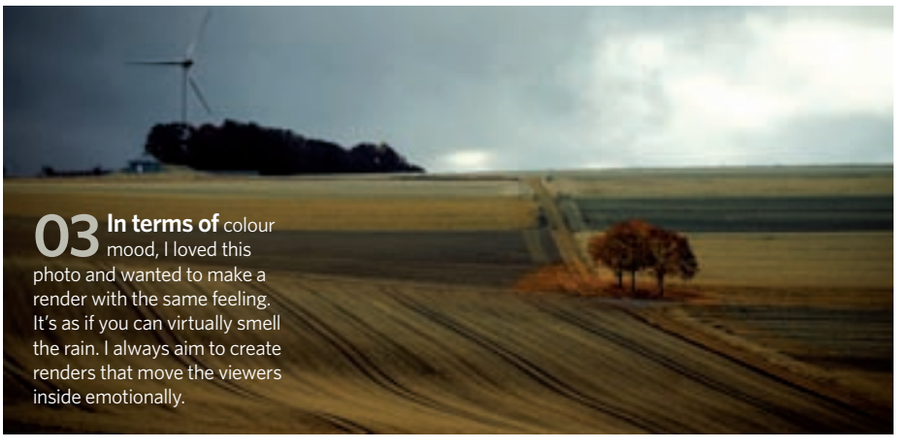


Modelling

01 The first step is always to do some research: I gathered every photo that I could find of the building from the internet. Some of them were quite influential, but most of them were just to gain a sense of the building's geometry. In the end, out of about 150 photos, only a few were useful.



02 While doing research over the internet, I came across the website of two students (Ankit Surti and Samuel Gwynn), who had already modelled the building in 3ds Max some years ago. Contacting them, they kindly agreed to help by supplying all the information needed to start the work, including the official drawings, which they'd acquired from the architect. Don't ever be scared to ask fellow artists for favours.



03 In terms of colour mood, I loved this photo and wanted to make a render with the same feeling. It's as if you can virtually smell the rain. I always aim to create renders that move the viewers inside emotionally.

I think a major change has happened over the last two years in the field of architectural visualisation. After the first appearance of Alex Roman's renders, the landscape of this industry has been totally reshaped. I knew that if I wanted to make something significant, I'd have to work harder than before to get any recognition. Therefore, instead of making one scene and shooting renders from different angles, I tried to make every render individual. I considered this to be ten different projects rather than just one, since each shot differs not only in lighting and composition, but in almost every other aspect too. The most interesting render out of the bunch is probably the above scene with the snow. As you read through this tutorial, you will find there are no secret tools – no surprises coming up. In fact, this is a good example of making something look great with the simplest of tools!

© Imagine Publishing Ltd
No unauthorised copying or distribution

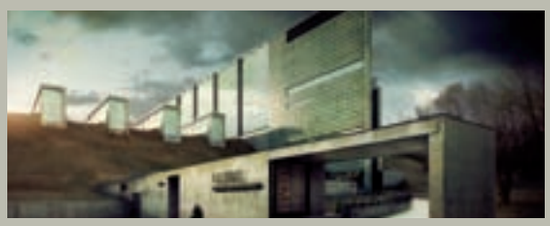
Artist Showcase

Viktor Fretyán

I have a very strong passion for architecture and have never really tried any other areas of 3D. I love renders with an artistic touch. Technical achievements alone are not enough for me. I prefer the work of artists who create a balance with colours, light and shadow.

KUMU, Main Lobby **3ds Max, V-Ray, Photoshop (2009)**
I decided to showcase portfolio images all taken from this particular project. This was actually the first render I took. I loved the colour balance between the cold blue coming from above and the warm, yellowish light from below

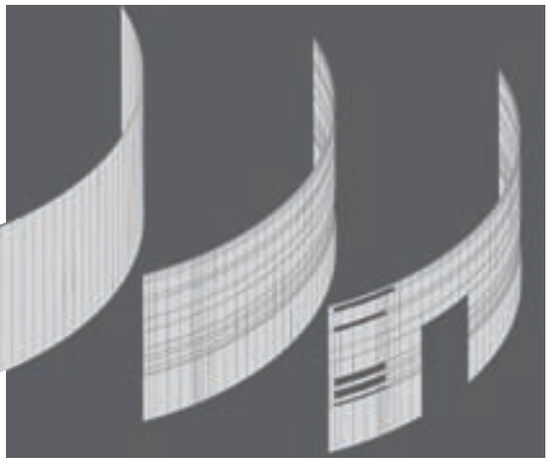
KUMU, Spring, Daytime
3ds Max, V-Ray, Photoshop (2010)
What I especially liked about this shot is the composition. The horizon line is kept very low, making the building look like it reaches very high and the camera correction also adds to that feeling. The aeroplane that curves across the sky adds a bit of dynamism as well



KUMU, Fall, Late Afternoon
3ds Max, V-Ray, Photoshop (2010)
This is where I tried to achieve the atmosphere I referred to in Step 3 with that evocative photo of a field. I was aiming for a very bleak image with the sun almost set and just moments away from the breaking of a storm

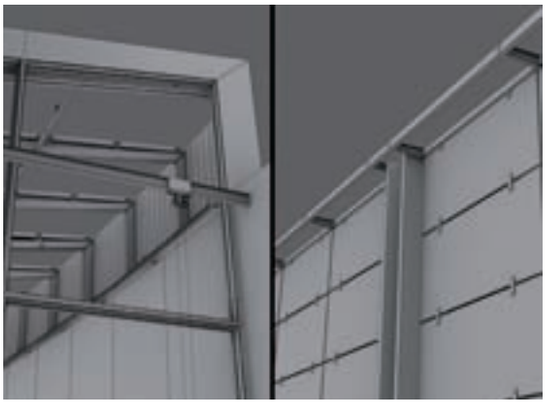
Modelling the building

Constructing the shapes

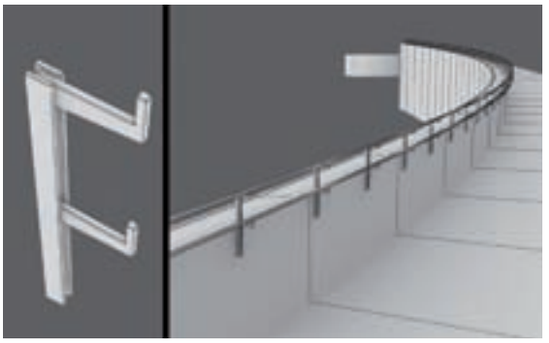


04 **I started with** the main volume of the building, which is the green metal wall, drawing a spline of only two vertices which were set to Bezier Corners. Having switched to Adaptive Interpolation, I moved it to fit the plan, converted it into editable poly and used Slice Plane to cut it as needed.

05 **On the other side,** it was quite similar, except it wasn't curved. I created rectangles for the outline of the wall and the windows, then converted them into splines and attached them. After that, I converted it into editable poly again and added a Shell modifier. The horizontal joint lines of the building's metal cladding were formed with a Displacement modifier.



06 **I modelled the** details as precisely as I could – even the ones I knew wouldn't be visible from such a distance. I did everything using only standard primitives or splines converted into editable poly images. The tools I used the most at this stage were Lathe, Sweep, Symmetry, FFD Box as well as the editing tools for editable poly.



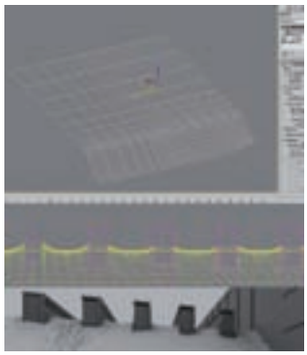
07 **For the railing** in front, I used splines again. I quickly outlined the posts, extruded the parts, chamfered the edges a bit and attached them into one editable poly. I made sure to watch the position of the pivot, so that I didn't have trouble offsetting the railings when using the Spacing tool along another spline.

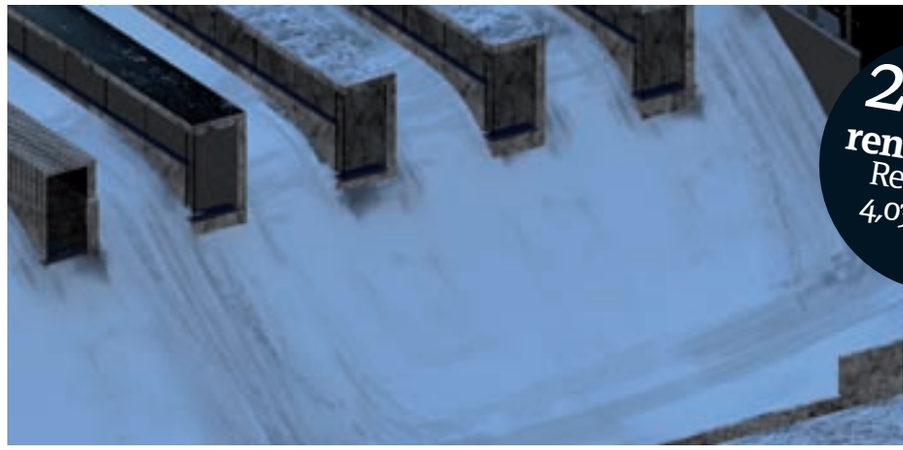
08 **The leafless tree** models started out as single boxes. Just by pulling vertices and extruding polygons, in a few minutes, I had created three kinds of branches. Applying Turbosmooth and scaling and rotating them several times, I ended up with some natural-looking winter trees.

© Imagine Publishing Ltd
No unauthorised copying or distribution

Refining the details

Bringing it all together

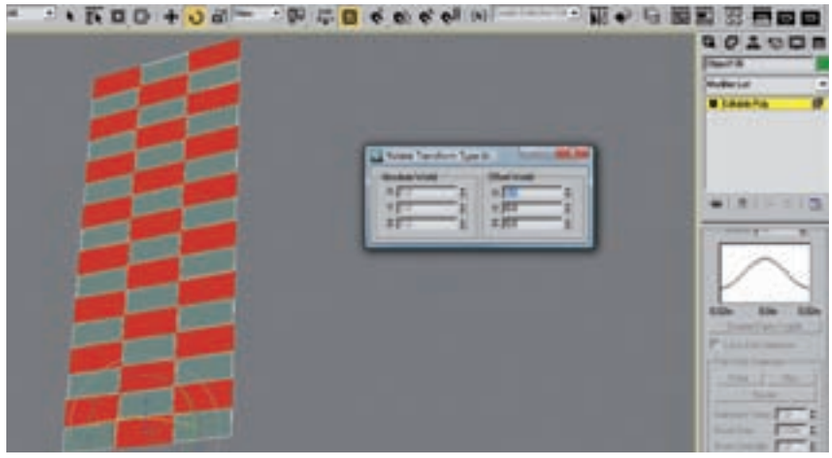


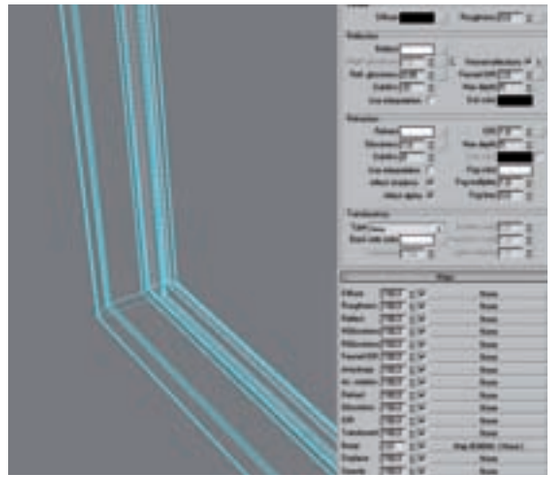


2-3 hours render time
Resolution: 4,037 x 2,659

09 The terrain was modelled using a simple plane that was distorted with FFD Box to follow the slope. I cut the holes in it by simply using the Boolean tool and adding a subtle Noise modifier before turning it into editable poly again. I used the Soft Selection controls to pull up vertices near the walls.

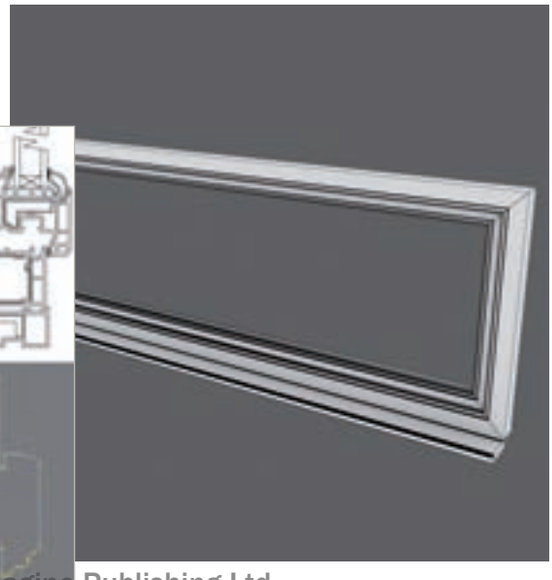
10 This might be disappointing for some, but the snow effect was achieved using a 2D Displacement modifier, rather than a particle system like PArray. I took a snapshot of the viewport from the top and drew a very large bitmap. Next, I applied it to the terrain by using a Planar UVW Map modifier.





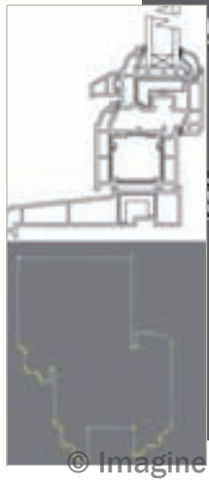
11 There's a little trick to doing glass that not many people use. I just added a little Noise Bump and simulated the double glazing by cloning the glass and pulling it back a few centimetres. I then applied a different glass material to it with the same settings, but a slightly altered Noise Bump.

12 Another problem that can occur when glass panels are lined up is the reflection breaking at the edge of each panel. To tackle this, I selected every second panel in a chessboard pattern and rotated them a little in all directions.



Lighting the scene

For the main light source, I used a VRayLightDome. Usually an HDRI might be used in the Map slot, but this time I just used a darker blueish colour. I set the Multiplier to 1.5 and made it invisible as to not affect the reflections (for which, I put an HDRI in the Reflection Override slot). The Environment Override was also checked in with a black colour to ensure the background didn't affect the lighting. As for the rest of the scene, I used smaller VRayPlanes and VRaySpheres with a warm orange colour.



13 Modelling a window is one of the easiest tasks, but can add a lot of realism when done right. I found a drawing of a section of a window and drew the outline with a spline. Once I'd applied a rectangle with a Sweep modifier, it was ready.

© Imagine Publishing Ltd
No unauthorised copying or distribution

I made this...

Incredible 3D artists take us behind their artwork

Artist info

Einar Martinsen

Website www.cgtorch.com
Country Norway
Software used 3ds Max, Photoshop

“For the modelling, I used a technique which I learned from a Gnomon Workshop DVD by Josh Nizzi, copying several different modelled objects from my personal library to fill out the design, engine, functioning parts and so on. And, of course, I modelled some custom-made pieces later on”

Software used in this piece

3ds Max

Photoshop

© Imagine Publishing Ltd
No unauthorised copying or distribution

> The use of 3D models in a concept/matte painting works great for me. It's so much faster to figure out the perspective. You're able to paint huge amounts of detail quickly and you can get underlying shaded surfaces, depending on what lighting you've set up

> This is a 3D concept/matte painting, and therefore I used several fast techniques to present the image. Since the goal was to create a concept scene, there was no need for a strict technical approach

Invasion 2010

This image was created as a personal project to push my own limits and to improve my matte painting skills, as well as others. I've always been inspired by powerful scenes, storytelling and art, which were the central ideas behind this piece.

© Imagine Publishing Ltd
No unauthorised copying or distribution

behind the scenes

3D artists explain the techniques behind their amazing artwork

Artist info

Dieter Meyer

3DArtistonline

Username: Deetz

Personal portfolio site
www.cg-artworks.com

Country Canada

Expertise Dieter has been modelling highly detailed aircraft for over three years to use in his aviation artwork

Software used in this piece

modo 401 | Photoshop | ZBrush

© Imagine Publishing Ltd
No unauthorised copying or distribution

Creating a magnificent Spitfire

Spitfire Mk5B 2010

Part two
Concluding instalment

> Texture, render and composite the Spitfire model mid-flight onto an authentic sky backplate

Dieter Meyer specialises in aircraft modelling

This is the second instalment of a two-part tutorial covering the creation of a Spitfire Mk5B. In the previous tutorial, I showed the workflow for the modelling process using modo 401.

In this tutorial, I'll cover the aspects of UV mapping the Spitfire, prepainting the model in modo and then perfecting the textures in Photoshop. The last stage will concentrate on lighting and rendering the Spitfire, before compositing the final renders to a backplate in Photoshop.

The hardest part of this tutorial will be the UV mapping. You'll find that modo has excellent UV mapping features and, once they are understood, it will make the process very easy. I generally create three or four high-resolution maps for a model, but for the purposes of this tutorial, we will create a single 4,096-pixel map that will hold all of the UVs.

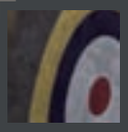
Textures will be created in Photoshop with additional textures downloaded from **www.cgtextures.com**. Further reference material for the Spitfire can be found at **www.supermarineaircraft.com** and **http://spitfiresite.com**.

On the Disc

Included is a selection of files to guide you through the tutorial, plus a cool skyscape and an active propellor.

spitfire_MkVb_textured.lxo
spitfire_MkVb_textured.obj
sky.jpg
prop blur.psd
Spitfire textures and UV maps

© Imagine Publishing Ltd
No unauthorised copying or distribution



UV mapping

Getting started with UVs in modo

01 Mesh layers

As part of my workflow, I initially created and named several mesh layers for the model. As we progress through the tutorial, we will combine the different layers into a single mesh with one UV map. Areas that have been UVed will be assigned a new material to keep things as organised as possible A.

02 Preparing a new UV map

Switch to the UV tab, on the top tool bar. If you can't see your model in the right view pane, just press 'A'. Hide all layers except for the one you're currently working on – in this case, the fuselage. On your Lists tab, select UV maps and then New Map, type in 'Fuselage' and hit Enter.

03 Project from View

Select the brace on the cockpit and press 'H' to hide it for now. Hit '3' for Polygons and, in the top view, select all of the polys on the right side. Switch to the right view and then select Project from View. Hit the left square bracket (ie '[') to highlight polys not currently selected and click Project from View again B.

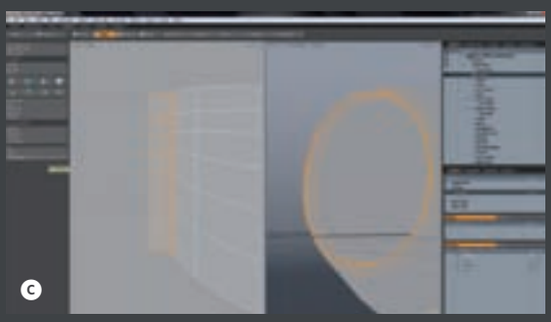
04 Adjusting the UV map

Select the left side of the fuselage and scale it in the V to -100%. Because the fuselage is rounded, we'll need to adjust the UV border to compensate or our textures will look stretched. We don't want to do it for both UVs though, so select both and then activate Fit UV's with the Keep Proportion option. Now select the UV Symmetry: V.

05 Continue to adjust the map

Areas in red indicate that the map is intersecting with other parts of the map. In some cases, this is okay, but not for the fuselage. Start by selecting the edges at the nose and pull them forward until there is no more red showing. Do the same for the rudder. It may be easier to select the edges in the model pane and move them in the UV pane C.

UV mapping, Texturing, Rendering



A Organising the mesh layers

B Mapping with the Project from View option

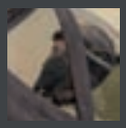
C Adjusting the edges to avoid stretching and overlapping

Artist Showcase

Dieter Meyer

I grew up in South Africa before moving to the UK and finally to Canada. I've always enjoyed drawing and sketching and using an airbrush to create artwork, but it was around 2000 when I started using Photoshop and 3D software to create digital art.

Macchi 205 **modo 401, Photoshop (2009)**
Created entirely with Subdivisions, the Macchi 205 proved to be quite a challenge in terms of modelling, but, in contrast, was really fun to texture



UV Unwrap tool

UV mapping without Project from View

06 Exhaust ports

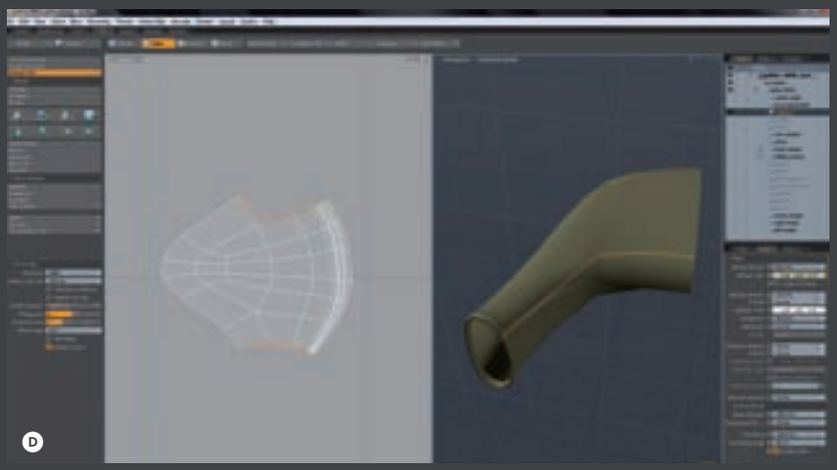
Using the Unwrap tool is a great way to UV map rounded or more complex areas of a mesh – eg the Spitfire's exhaust ports. In Edge mode, select the edge of one of the exhaust ports as shown in the screenshot. Set the Iterations to 2,000 and use the Cylindrical projection D.

07 Multiple objects

Since we have six exhaust ports, we don't want to have to UV map each one individually. Select the exhaust port polygons in the UV pane and Ctrl+C to Copy. Then select the next exhaust port in the model pane. Back in the UV pane, Ctrl+V to Paste the UV map, then move it over slightly to the right. Repeat this step until all of the ports are mapped E.

08 Sewing edges

After you have unwrapped the aerial, it will split in half, so you'll have to sew the sides back together. To do this, select the edges on one portion of the UV map. The corresponding edges will turn blue for the matching side. Use Selected to sew the blue edges to the ones you have selected. Or use Unselected to move the highlighted edges towards the blue unselected edges.



09 UV Unwrap

After you've sewed the aerial together, use the UV Relax tool to edit the UV shape. Select the polygons of the UV map, with Iterations at 100 and in Unwrap mode, click on the UV pane to edit the map. It should now be more linear in shape rather than warped-looking. Rotate the map to a vertical position F.

D Using the Unwrap tool on the Spitfire's exhaust port

E Creating UV maps for duplicate objects

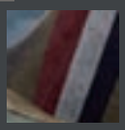
F Using the UV Relax tool to adjust the UV map's shape

Humber Mkl **modo 401, Photoshop (2009)**
I wanted to start adding some armoured vehicles to my collection and thought this little armoured car would fit well

Me-262 **modo 401, Photoshop (2008)**
The only jet in my collection of CG aircraft. Modelled in modo and textured in Photoshop. The diorama base represents the area in which this plane is stored outside

UV Relax

Sometimes the first attempt at relaxing the map doesn't work. With Interactive checked, you can continue to adjust the UVs. Each time you click on the map at a vertex point, a blue square appears that can be moved around. These areas are also pinned and allow you to edit the specific section without the entire shape moving.



Painting in modo and Photoshop

Adding a little colour

10 Exporting the UV map

Finish UV mapping the model using the techniques explained. Refer to the files provided as a guide for the different areas to see how to go about laying out the UVs. The next step is to export your map as an EPS to open in Photoshop. Go to Texture>Export UVs to EPS and give the file a name of your choice G.

11 Setting up a new texture

Before doing anything within Photoshop, paint in basic colours in modo to get everything lined up. In the Paint tab, go to Utilities>Add Color Texture, then name the file and set it to 4096 x 4096 pixels. If you haven't given your model a new texture yet, do so now, then drag it into the new Material group H.

12 Painting in the base colours in modo

Now, under Paintbrush, select the Hard brush. At this point, you can choose any colour you like as it will be replaced later in Photoshop. Using the reference image provided, you can paint in the basic camouflage. No need to worry about the underside as that remains a single colour. Painting in modo also allows you to paint across separate UV maps I.

G The finished UV map ready to export as an EPS

13 Setting up your files in Photoshop

Open the UV map as an RGB at a size of 4096 x 4096 pixels. Next open the colour map saved from modo. Ctrl+click the layer to create a selection and then Copy and Paste it to the UV file, keeping the UV layer on top. You may need to invert the UV layer so that it's white to make it a little easier to see.

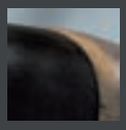
14 Painting in the base colours in Photoshop

Now that we can see where our camouflage is going in relation to the UV map, we can start adding base colours. For the panel lines, use a 1px black line. To create the rivets, use a hard-edged brush. In the brush options, under Brush Tip Shape set Spacing to 300%. Click once to begin and Shift+click to finish J.

H Setting up the new paint file in modo prior to Photoshop

I Adding the basic camouflage pattern using the Hard brush

J Starting to add the correct base colours, panel lines and rivets



Texturing

Adding the dirt and light maps

K

Riveting stuff

When a real aircraft has rivets inserted, the steel of the body is distorted. In addition to the regular rivets and panel lines, try painting in some slight deformations with a soft brush and very low opacity to create interesting undulations in the bodywork. Another step is to duplicate the rivets and panel lines and add a Gaussian Blur to feather them out, thereby creating more subtle undulations to the surface. If the rivets are raised, then switch the colour so the area around them is depressed.

15 Dirt maps

At this stage, we want to break up the clean look of the aircraft by adding some dirt maps. I find that the site **www.cgtextures.com** is a great place to start when looking for textures. I tend to use a dirty, bare metal steel, placed on top of my layers and set to Multiply. You can then play with the opacity to see what suits you best K.

16 Diffuse amount

Organise your layers in Photoshop so that all of your colour layers are in a single group. Duplicate the group and call it 'Diffuse Amount'; this will control the light saturation of the colour map. Add a new Hue/Saturation adjustment layer, with Saturation at -100. Hide the camouflage as both colours will receive the same light saturation. Reduce the opacity on the other layers as well L.

17 Specular map

I like to create Specular maps with high contrasts between white and black. I usually use a few dirt maps with different opacity levels layered on top of one another. Here I've also painted in some areas where I think there should be more spec – for instance, where the aircraft would see greater wear and tear M.

18 Reflection map

White being the most reflective colour, we now need to alter the various areas that will be reflective. Tyres, for instance, should have no reflectivity, whereas the metal body should have a good deal. We will control the actual reflectivity later in modo. Overall though, the painted reflectivity should be kept fairly dark.

19 Bump map

The black panel lines should have the opacity reduced so that when they are placed in the Bump channel, they are not too deep and look trenched. This also applies to the rivets, which are only going to be visible on close-up renders. Give the background a medium grey shade and make sure any Bump layers correspond N.

L

M

K Bare metal texture added, set to Multiply with 48% Opacity

L Diffuse Amount map after desaturation and altering the opacity levels

M Specular map with several layers of dirt maps added

N The Bump map showing a close-up of the rudder fabric

Rendering

Bringing the Spitfire to life

30 mins render time
Resolution: 3,888 x 2,592

20 Assembling the textures in modo

In modo, if you haven't done so already, assign the Spitfire a material with a unique name. Expand the Material group and use the Add Layer tab, then scroll down to Image Map and load one of the textures that you created. Do this for each map thereafter until all of the textures are loaded O.

21 Adding the sky

We now have to decide on how to light the Spitfire. We'll use our backplate as reference in modo. In the Shader Tree, expand the Environment group. Use the Add Layer tab to load the 'sky.jpg' image. In the Texture Locator tab, change the Projection Type to Front P.

22 Boosting the lighting

We already have a Directional light, but we'll add two Area lights to help fill in some of the darker areas. The first will be positioned below, to create simulated light bounce from the clouds, and the second as a light fill opposing the Directional light. Set to Physical Sun with London as a location and set the time to 17:30 with the North Offset at 150.

23 Adding render outputs

The Spitfire will be rendered in layers. Expand the Render group and use the Add Layer pull-down to add a new render output and set it to Ambient Occlusion. Do the same to add Reflection Shading, Specular Shading, Transparent Shading and Diffuse Shading (Total). In the Render properties, enable Indirect Illumination Q.

24 Rendering

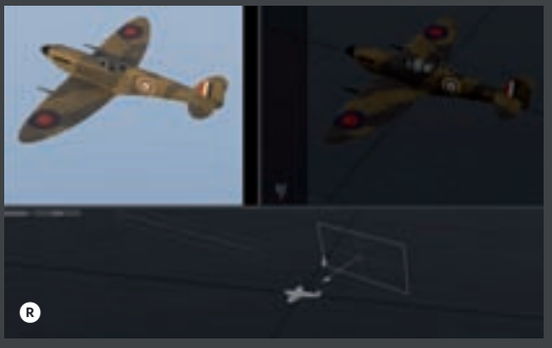
Hide the sky layer for now. Rendering will be done in two stages. The Spitfire first, then without moving your render camera, the propeller place holder, which will be used in Photoshop when we add the propeller blur. The default options will be okay, but Antialiasing can be turned higher to 32 samples/pixel if you prefer R.

Target the lights

To make it easier to keep the Area lights concentrated on the Spitfire, create a locator by going to New Item>Locator. Select the Area light and then the locator and, in the properties of the light, select Set Target. Now when you rotate the lights, they will move wherever the locator moves. Just add the locator to your Spitfire group.

P

Q


R

O

O The texture maps once added to the material

P Adding the sky image for lighting reference

Q Preparing the Spitfire to render in layers

R Rendering the Spitfire

Compositing in Photoshop

Adding the Spitfire to your backplate

25 Opening the rendered files

The next step is to add a mask to all of the layers. Ctrl+click the Alpha layer to select it, then Ctrl+C (Copy). In the Channels tab, create a new layer and Ctrl+V (Paste) the Alpha in. Deselect the layer, then Ctrl+click to reselect the Alpha channel. Click on any layer and then hit Add Layer Mask (S).

26 Adding the prop blur

Open the render of the prop place holder and Copy and Paste it onto the Spitfire. Next, open the file 'prop blur.psd' and drag the prop group onto the Spitfire. Now use the Distort option (Edit>Transform>Distort) and use the prop place holder as a guide. The last thing to do here is to erase some of the prop that sits over the spinner (T).

27 Layer blend modes

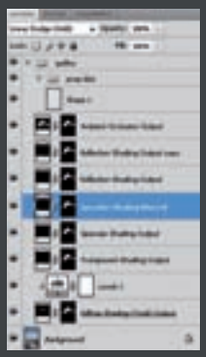
The final step before we composite our Spitfire onto the photo backplate is to adjust the layer blend modes for the various render outputs. Ambient Occlusion is set to Multiply to remove all white areas, while Reflection, Specular and Transparent layers are changed to Screen in order to remove the black areas. These can now be fine-tuned to your personal taste (U).

28 Compositing the Spitfire

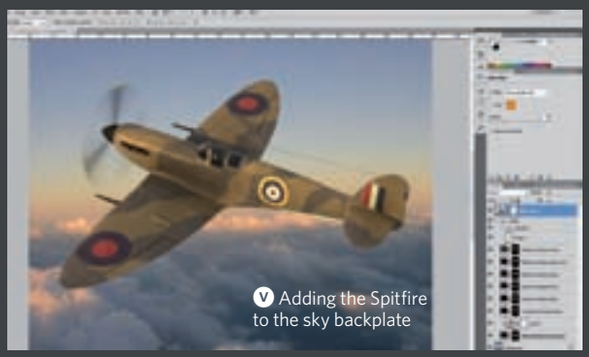
Create a new group for all of your layers and call it 'Spitfire'. Open the 'sky.jpg' image, then drag and drop your Spitfire group onto it. Resave this as a PSD file to continue the work. Now add a Photo Filter adjustment layer with Density set to 25%; this will help blend the Spitfire into the environment (V).

(S)

(T)



(U)



(V) Adding the Spitfire to the sky backplate

29 Motion details

To give the Spitfire a sense of motion, we can incorporate some vapour trails and exhaust fumes. Using a fine brush, add a few streaks onto the wingtips and perhaps add a little motion blur (Filter>Blur>Motion Blur). The same process can be used to add exhaust fumes (W).

(S) Creating the layer masks

(T) Adding the propeller blur to the Spitfire

(U) Adjusting the layer blending modes

(W) Adding some extra details to the image for authenticity

Keeping it real

When creating textures in Photoshop, try to use as much real-world reference as you can. The key is to alter and blend them in such a way as to – in essence – produce your own unique textures. Sometimes it may not be necessary to create a very worn aircraft, but adding a slight touch of wear and tear can make all the difference.

I made this...

Incredible 3D artists take us behind their artwork

Artist info

Hodong La

Website www.hodings.com
Country South Korea
Software used 3ds Max, Photoshop, mental ray

"I believe composition is very important, but my work doesn't employ a difficult technique: I focus on story, message, mood and colour. When establishing the composition, I spend most of the time looking for the right feeling"

"Using mental ray, I rendered all elements to start and then made separate passes for Specular, Colour, Diffuse, Ambient Occlusion and Z-Depth. For the Z-Depth layer, I used the Lens Blur filter in Photoshop, where I also made use of the Color Balance tool and corrected the overall contrast. Working with an image of 6,000 pixels, it was a very heavy file!"

© Imagine Publishing Ltd
No unauthorised copying or distribution

Discovery 2010

This giant humanoid's name is Roy and his mission is to find a way to heal a sick planet Earth. Exploring an unknown world, during his expedition, he discovers a blue life form on Mars, capturing a photograph of it to keep as a record.

Software used in this piece

3ds Max · Photoshop · mental ray

© 3DArtist Publishing
No unauthorised copying or distribution

Step by step: Create a lush Chinese garden

Garden of Serenity 2010

Assembley, Materials, Lighting

© Imagine Publishing Ltd
No unauthorised copying or distribution

Software used in this piece

Vue 8 Infinite

Photoshop CS4

Step by step

Easy-to-follow guides take you from concept to the final render

Artist info

Drea Horvath

3DArtistonline

Username: Drea

Personal portfolio site www.dreahorvath.darkfolio.com

Country Hungary

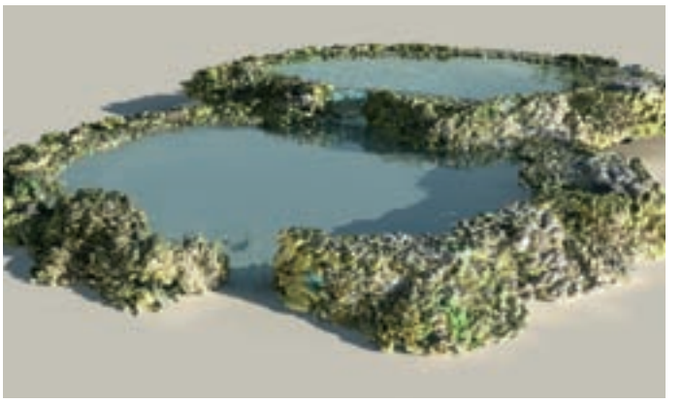
Hardware used Intel Core 2 Quad 9650, 8GB RAM

Expertise Drea specialises in creating mostly large-scale, detailed natural landscapes in e-on software's Vue, with particular strength in atmosphere and lighting

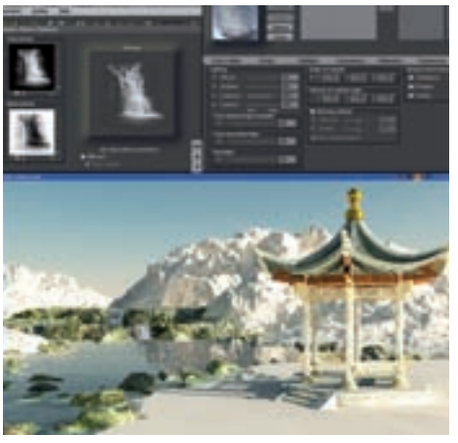
Concepts

The inspiration behind the scene

01 **Once I started** to see the scene in my head clearly, my first step was setting a basic composition of water and terrains. For the water, I used Vue's default MetaWater, deleted the Foam layer, and made it look more realistic by increasing the values of Highlight Global Intensity (72%), Highlight Global Size (75%) and Turn Reflective with Angle (75%). I placed the background terrains near the area that I wanted the waterfalls, added a few lakeside terrains to the middle-ground and a flat terrain (with the gazebo) in the foreground.



02 **Creating more water** levels with waterfalls in Vue is a real challenge. You may need to experiment for a while before finding the best solution that works for you. My aim was to make a series of waterfalls flowing among smaller rocks. For this, I made two flattened terrains with the same default MetaWater material and painted rocks to the edges using the EcoSystem painter, leaving some space for the waterfalls to be added in the next step.



03 **Although you can** use objects as waterfalls as well, the best way to create realistic waterfalls in Vue is by adding Alpha planes of 2D pictures of real waterfalls. You can find some great packs of waterfall planes at **www.renderosity.com**. After selecting the pictures for the Alpha planes, I opened the Material Editor, reduced Diffuse, Ambient lighting and Contrast to zero, and increased Luminous lighting to 84%. Following that, I adjusted their scale to make them fit the space. Finally – to add more detail – I painted some rocks by the terrains and randomly into the lake.

> My goal was to bring the fresh, vivid mood of spring into Vue's digital world

Drea Horvath is a freelance digital environment designer

One day I came across the website of gifted American painter Thomas Kinkade, and I was amazed by his truly inspiring works. His paintings evoke a special mood; something I've always wanted to achieve with my own digital landscapes. When I started composing *Garden of Serenity*, my goal was to make a lush, vivid spring scene of an oriental garden, bringing Kinkade's marvellous mood into Vue's digital world.

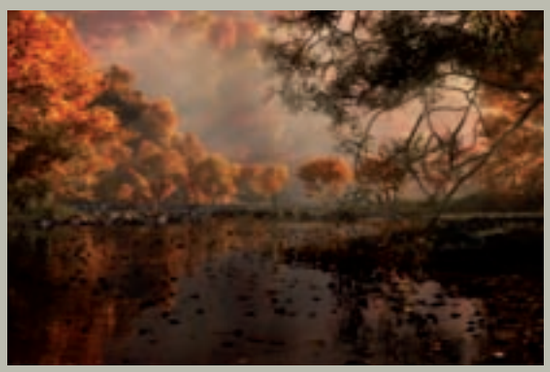
In this tutorial, I will show you step by step how I composed this scene. You can take a peek into the process of setting the basic composition. I will describe how I used 2D Alpha planes in this 3D application, reveal how I used Vue's procedural materials and created multiple layers of EcoSystem, and also explain how I set the atmosphere and the lighting using Global Radiosity. I will cover my render settings and, lastly, I will show you a few techniques for adding some magic to the final render in Photoshop.

© Imagine Publishing Ltd
No unauthorised copying or distribution

Artist Showcase

Drea Horvath

I am a 23-year-old, self-trained freelance digital landscaper living in Budapest, Hungary. I started playing with Vue as a hobby about two years ago. It took a while to develop my skills to my current level and to find the style that suits me best. Mostly I create large, complex environments, with powerful, dramatic atmospheres. Recently I joined iMU Studios' THUNDER Throne Wars game project as an environment and level designer.



Autumn Harmony **Vue 7.5 Infinite, Photoshop CS4 (2009)**
A silent and peaceful autumn morning, which was inspired by a nice photograph I came across randomly. The perfectly detailed HD fall maple and alder trees really set off the scene well

The Scent of Spring **Vue 8 Infinite, Photoshop (2010)**
I made this render near the end of winter, getting bored of the gloomy, cold weather. With its lush and detailed foreground and large, complex background, it contains all my favourite styles

Dangerous Beauty **Vue 8.5 Infinite, GeoControl 2, Photoshop (2010)**
This render was inspired by the recent eruption of the Icelandic volcano Eyjafjallajökull. I decided to try something new and make a much bigger volcano, as a terrain function exercise

Assembling the scene

Creating a lush and detailed EcoSystem

04 **My terrain material** selection was based on original plans regarding the EcoSystems. In this scene, I wanted to create three types of EcoSystems; grass and several species of flowers in the foreground and middle-ground, bushy cliffs surrounded by trees near the waterfalls, and dense forests of ash in the background.

05 **After adding QuadSpinner's** great soil material to the foreground, I turned it into an EcoSystem, and added a dense layer of grass. I set the Density to 96% and reduced Decay Near Foreign Objects to 1%, before adding a new layer of different multicoloured flowers, with 76% Density, and 5% Decay Near Foreign Objects. Finally, I created the paths to the gazebo by erasing plants with the EcoSystem painter.

06 **On the middle-ground** terrains, I applied the same steps as on the foreground. Next, I added another layer of colourful bushes from Incredibly Lush's 'Hint of Spring' collection (**www.incrediblylush.com**), and randomly placed some species to the terrain with the help of the EcoSystem painter.

07 **For the cliff material,** I chose the same rock texture as added to the rocks around the waterfall, so the various terrains blended well. Here, I made three layers of plants: a layer of bushes added to the middle-ground, a layer of medium-sized blossoming cherry trees and a layer of larger alders.

08 **Since I planned** to turn the background terrains to dense ash forests, it was enough to use a soil material for the ground with just one layer of EcoSystem. I added a layer of large European Ash, set the Density to 76% and the Decay Near Foreign Objects to 1%.

09 **After setting the** EcoSystem on every terrain, I added large European Ash trees, alders, bushes, cherry trees and a static tree near the foreground manually. If you're placing plants closer to the camera, it's more practical to use static plants like Xfrog, because leaves of Vue's SolidGrowth plants are made of Alpha planes, which can look flat up close.

© Imagine Publishing Ltd
No unauthorised copying or distribution

Illuminating the scene

Misty atmosphere and realistic lighting

10 Using Global Radiosity instead of Vue's default Global Ambience makes a significant difference. I used a Gain of 2.00 to add some reflected light and increased Sky Dome Lighting Gain to 1.1. Then, I pulled the Light Balance slightly to Sunlight (65%) and almost all Ambient Light to From Sky (91%). After finding the best sun position, I set Softness to 5 degrees to get rid of any sharp shadow edges.

11 The next step after adjusting lighting settings was to create more depth and incorporate a misty look. For this, I drastically increased Aerial Perspective value to 40% and increased Fog to 25%. To keep the colours vivid, I decreased Haze to 10%. Since the sky was almost fully covered, the clouds didn't require a lot of work; I just added a dark cumulus layer.

Lighting and rendering

Besides EcoSystem, atmosphere and lighting are the other key elements in this scene. The atmosphere is the factor that determines the mood of the render and it affects the way we perceive everything in the scene, from vegetation to materials and objects.

In this scene, I wanted to achieve that special oil painting feeling, yet make it look as believable as possible. This is when a misty atmosphere with increased sense of depth coupled with realistic lighting comes into play.

The best choice for realistic lighting in Vue is Global Radiosity (GR), because – using photon calculations – it can mimic real-life lighting with reflected light. It is also important to use Indirect Skylighting to get colour-reflected light, and if you make a natural environment, Optimized for Outdoor Rendering should also be enabled.

The only price you have to pay for using GR is render time; since it's based on a lot of calculations, it consumes more system resources, thus it often leads to large render times. To avoid this, you can reduce GR Quality to -2 while composing the scene and to -0.7 for the final render, without any visible quality loss.

107 hours render time Resolution: 3,000 x 1,687

12 After setting the atmosphere, the scene was ready for final rendering. Since there were a lot of plants with small details in the image, and Volumetric Sunlight was enabled, the atmosphere needed a Quality Boost of +1 as opposed to the default -1 to avoid noise. This resulted in a very long render time of 107 hours at 3,000 x 1,687, broadcast render profile.

13 When the final, high-resolution image was rendered, I launched Photoshop to make some minor contrast, colour and level corrections. After that, I slightly desaturated greens, added some vapour around the waterfalls and a bit more mist to the picture, using Cloud and Smoke brushes. Finally, I used the Clone tool for minor corrections.

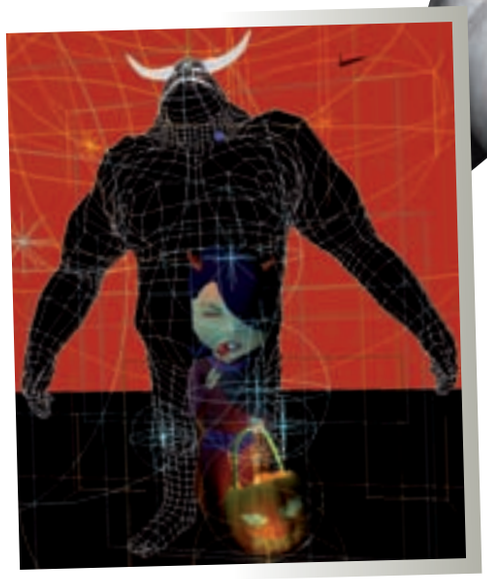
© Imagine Publishing Ltd
No unauthorised copying or distribution

Step by step: Painting up a demon image

Trick or Treat 2010

Discover how to create a painterly image with vivid colours on the theme of Halloween

Andrzej Kuziola specialises in modelling and character creation

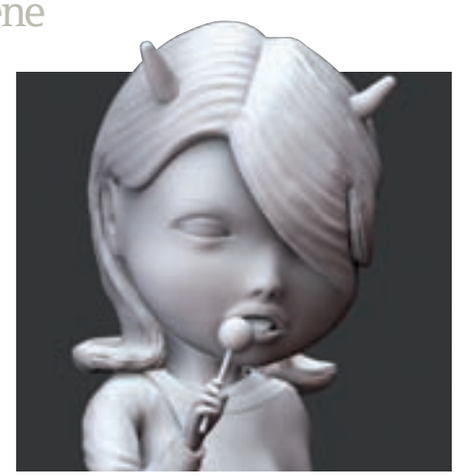


In this tutorial, I will be explaining how I created this Halloween-themed illustration. I am going to focus more on texturing, materials, lighting and postprocessing than on modelling. The illustration was created mixing both 2D and 3D techniques. I feel more comfortable working this way as I have greater control over the process. My goal was to achieve a mixture of cartoon-like, exaggerated characters with a colourful, painterly look. I usually work mainly in dark, unsaturated colours so working with a new palette was a bit of an experiment and I was curious to see how it would look in the end. I was working with CINEMA 4D and ZBrush for modelling and rendering, while using Painter and Photoshop for texturing and postproduction. I also used UVLayout to unfold the model and to create UV maps.

Design inspirations

The style for the scene

01 I started from a concept created in ZBrush and Painter inspired by disguised children walking from house to house and asking for sweets at Halloween. The idea here was to show a little girl asking for a treat and a big demon behind her who's ready to play a trick on those who don't provide any goodies.



02 It was important to me that the girl should look sweet and innocent at first glance, particularly in comparison to the sinister looking demon. Look closer, however, and you realise that she is a she-devil – and that out of the pair, she is probably the one calling the shots.

03 I wanted a very stylised look for the demon. I was going to try different approaches to achieve an interesting painterly effect despite it being done in 3D. I wanted to achieve this with lighting and hand-painted textures using RealBristle brushes. Everything was maintained in warm orange-red hues associated with hellfire.

© Imagine Publishing Ltd
No unauthorised copying or distribution

Texturing, Lighting Painting

Step by step

Easy-to-follow guides take you from concept to the final render

Artist info

Andrzej Kuziola

3DArtistonline
Username: ak666

Personal portfolio site www.kuziola.com

Country United Kingdom

Hardware used Mac Pro 2.66 GHz Dual-Core Intel Xeon, 7GB RAM

Expertise Andrzej specialises in modelling and quirky character creation

Software used in this piece

CINEMA 4D · ZBrush · Photoshop · Painter · UVLayout

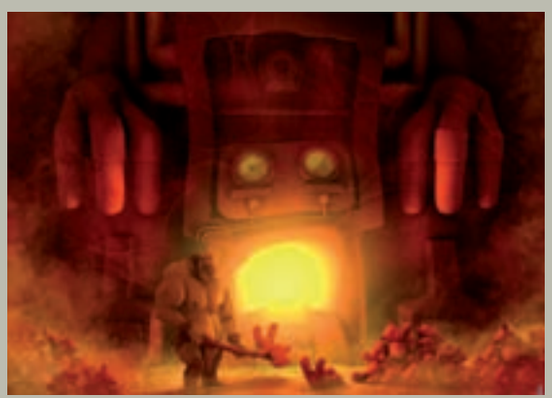
© Imagine Publishing Ltd
No unauthorised copying or distribution

Artist Showcase

Andrzej Kuziola

I am a self-taught digital artist. I qualified in Dentistry, but no longer work in that profession. I am a freelance illustrator and 3D modeller now and I really enjoy it. Software such as CINEMA 4D, ZBrush and Photoshop help me to create realms that would otherwise exist only in my mind.

Parthenogenesis **CINEMA 4D, ZBrush, Painter, Photoshop (2009)**
Parthenogenesis is an asexual form of reproduction where growth and development of embryos occurs without fertilisation by a male. This is my dark and twisted interpretation of the word 'Newborn', which was the theme for a contest. Polish artist Zdzislaw Beksinski was a great inspiration behind this image



Teddy Bear Snacks **CINEMA 4D, Photoshop, ZBrush (2008)**
Pandemonium, the diabolical Boiler God, hungry for innocent, cuddly teddy bears. I was inspired here by human sacrifices made to teixiptlas [cult effigies or impersonators] in ancient Aztec civilisation. This is another illustration created for a contest – this time with the theme of 'Boiler room'. It won third place in the competition and was published in *Expose 7*

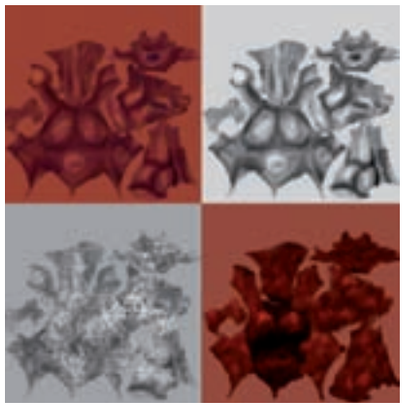
H2O **CINEMA 4D, Photoshop, ZBrush (2009)**
This is my first illustration where, instead of the dark arts, I started to create nice, cute female characters with bright colours. This illustration was selected by MAXON for promotion of CINEMA 4D. It was published in MAXON's 2010 calendar and you can find it in the gallery on the website **www.maxon.net**

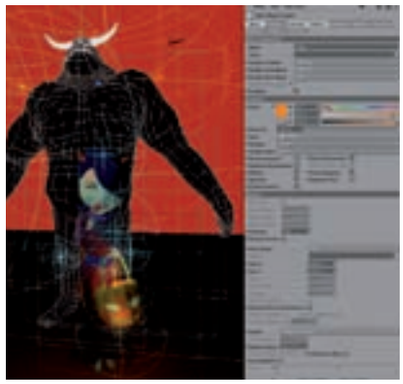
Materials and lighting

Adding textures and setting the scene

04 **I started the** texturing process in ZBrush with PolyPaint. After establishing overall colours and painting cavities, I moved to Painter where I created proper textures mainly with Artists' Oils before exporting them to Photoshop, where I made Bump maps by playing with Desaturate and Levels. I used this workflow with some modifications to texture all of the objects.

05 **For the girl,** I painted a flesh-coloured map, which was placed in the Color and Diffusion channels of the standard CINEMA 4D material along with modified maps in the Bump and Specular channels. The most time-consuming process was tweaking the Luminance channel, which consisted of a Subsurface Scattering layer in Dodge mode with another colour bitmap beneath.





06 **For the demon,** I created a few different colour maps in Painter, which I used in the material's Color channel, modifying desaturated versions in the Diffusion, Bump and Specular Color channels. I wanted the demon to look very stylised so I experimented here to achieve a look similar to a portrait that's been painted with thick oil paints.

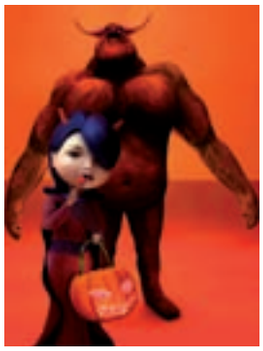
07 **To set up lights,** I used low-poly meshes to speed up test renderings. I like to accentuate different shapes and surfaces so I used quite a lot of lights – mainly warm-coloured ones with Area shadows and Inverse Square Falloff applied. To illuminate the girl, I also used blue lights and placed everything inside a sphere as a Floor object so that the light bounced off the sides.

08 **When I was happy** with the result, I swapped the models with high-poly meshes and rendered them in Advanced Renderer with Global Illumination, Ambient Occlusion and a separate Alpha channel for each object. I made different renders for the girl, for the demon and one for the background, which I filled with Fog material.

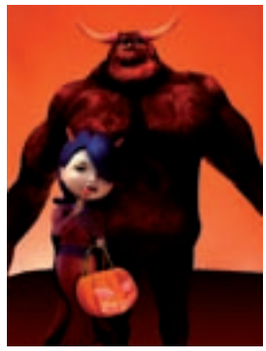
© Imagine Publishing Ltd
No unauthorised copying or distribution

Postproduction painting

Creating the colours and smoke



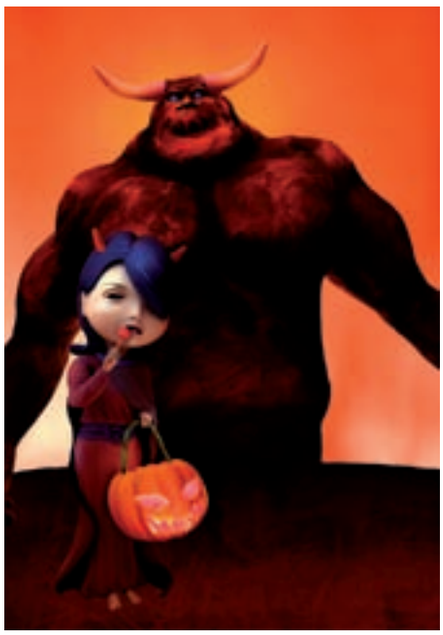
09 **I combined all** the renders in Photoshop and loaded Alpha channels into layer masks to separate the characters from the background. I also reduced the size of the girl to make the demon look more menacing and composed all his renders with layer masks to create the textured effect I was looking for.



10 **To strengthen the** effect and make it even more interesting, I exported it to Painter where I overpainted the texture. To do this, I used the Soft Flat Oils brush from the Art Pen Brushes menu, Cloners and Artists' Oils. I loaded colours sampled from the demon into the Mixer palette and used them extensively. This palette is very handy when you are working with Artists' Oils.

Modelling the scene

For both characters, I started from my standard human base mesh created in CINEMA 4D. Final form and details were done in ZBrush. I rapidly reshaped the base meshes with Move and Standard brushes and then detailed it. My goal was to create stylised, cartoon-like characters – correct anatomy and topology were not important for me here, so the process was very fast – particularly for the demon. I posed the characters with ZBrush's Transpose tools and then added details with SubTools. Clothes and hair were made with the Retopology tool, while the horns, lollipop and jack-o'-lantern were created with meshes imported from CINEMA 4D.



11 **To clean and** brighten the girl's skin tone, I overpainted some parts on a separate layer set to Lighten blending mode with Fill at 70%. I painted in eyes as well (it was much faster for me to do it in 2D). When I was happy with the result, I started to detail the background. I painted in smoke to frame the demon's head and make it a focal point.

12 **Back in Photoshop,** I looked to improve the composition and make it more dynamic by rotating and deforming the demon a little and starting to add details to the ground. I used custom brushes made from photographed scaffoldings. I wanted the demon to look like he was emerging from an abyss, so I merged him with the ground – with the help of the same custom brush and a series of layer masks.

8 hours render time
Resolution: 2,788 x 3,920

13 **To add more** contrast and rhythm to the illustration, I changed some colours from selective to complementary using a Hue/Saturation adjustment layer with a new layer mask. I then painted some strands of hair and made final tweaks to the image. Finally I added more smoke with the custom brush. This integrated all of the elements, created a more mysterious atmosphere and helped to lead the viewer's eye through the picture.

© Imagine Publishing Ltd
No unauthorised copying or distribution

3DArtist

Masterclass

TJ Armstrong looks at the evolution of the cloth solver and how now more people than ever can take advantage of this tool in their own 3D art projects

On the Disc

Three Blender files to show how the cloth simulation works

Creating clothes

Blender

> Realistic clothing is notoriously difficult to model, but with the power of cloth solvers, it doesn't have to be

For years, cloth solvers have been the plaything of studios with supercomputers and high budgets. But with end-user CPUs getting more and more powerful and the recent developments in OpenCL and GPGPU (General Purpose Graphics Processing Units) processing, the wall between supercomputer and desktop computer is breaking down; it's time to embrace the cloth solver.

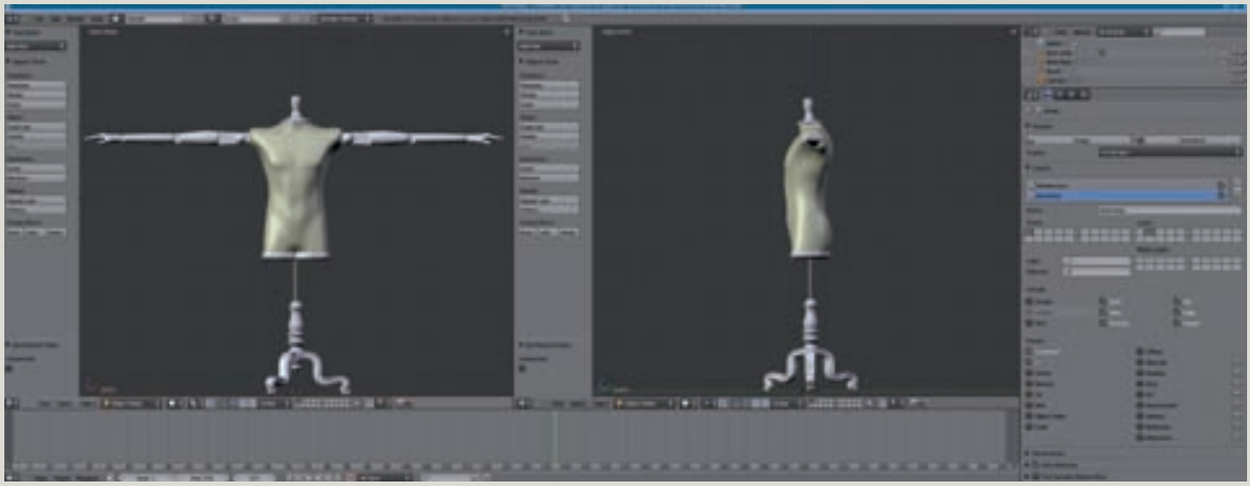
As far as integrated cloth solvers go, the one included in Blender 2.5/2.6 has it all; with a clean UI and beautifully accurate results, it's hard to go wrong.

By making a simple, modern shirt, in this tutorial we are going to cover everything you need to know to make realistic clothes using Blender's Cloth solver.

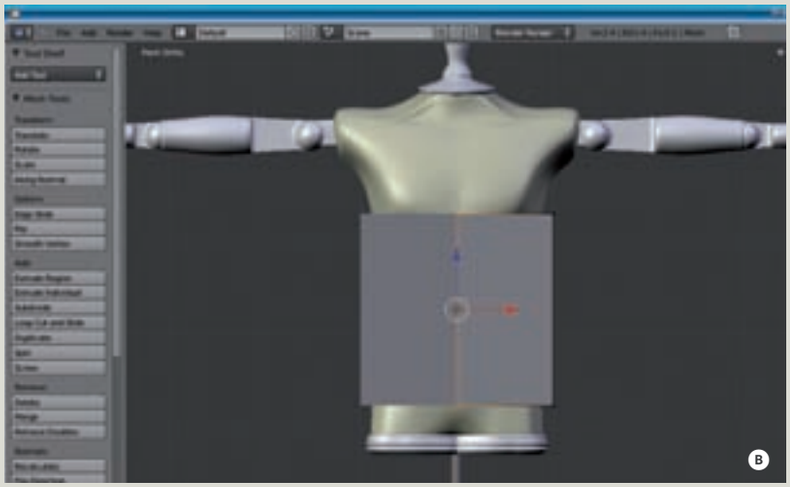
Blender's Cloth solver is one of the most advanced features the program has to offer. Over the last year, we have seen it develop from a fairly simple, Soft Body-esque solution to making a tablecloth, to something that really brings the fight to the commercial market. With it, you have a solution to a great number of problems. And with the team behind the open source project BulletPhysics working towards fully supporting GPGPU processing, we may start to see those benefits transferred by Blender 2.6; it's not definite yet, but it's certainly not far off the radar.

© Imagine Publishing Ltd
No unauthorised copying or distribution

Join the community at www.3dartistonline.com



A



B

> Blender's Cloth solver is one of the most advanced features that the program has to offer

Cloth solvers in general have a vast number of uses, ranging from the obvious to the unexpected. Several obvious uses that come to mind include clothing, bags and curtains. However, it's the less obvious uses that are usually far more helpful in the long-run, such as cables, plants and dragons' wings, to suggest just a few. When working with cloth solvers, it's important to remember that they are not the only solution. Sometimes it may be better to use Soft Bodies, which although similar (at least on face value) to cloth solvers are actually quite different, in both the maths they employ and the results they produce. A good knowledge of cloth solvers can provide an answer to a problem that may otherwise appear insurmountable.

Approaching a cloth solver for the first time can be daunting, as there are few tutorials that go beyond making a tablecloth or, at most, a pair of curtains.

The result of this lack of information is that while there are many beautifully simulated kitchen/dining room scenes out there, few of them utilise the true potential of cloth solvers. To make this worse, most of the cloth solvers publicly available are difficult to get your head around and/or have incomprehensible GUIs. Thankfully however, the open source community provides a light in the dark – leading the way in simplicity and quality.

The main difficulty in making realistic clothing with cloth solvers is that they work by the principles of surface volume rather than shape and structure.

This makes creating clothing (from a 3D artist's perspective) exceptionally difficult because, naturally, your instinct tells you to make your cloth conform to your base-mesh (ie the character). If you were sculpting clothes, this would be the way to start, but it is precisely the wrong thing to do when using cloth solvers, as this will add an ugly excess of cloth. Instead, you need to retrain your eye to see where to put the cloth and how much to include to make it follow the correct shape. Often this means putting cloth where you don't actually want it to be in the final composition, or making part of the cloth shorter than you might think it should be at first glance.

Another important thing to remember when working with cloth solvers is to enable collisions on every object that interacts with the cloth. If you don't do this, you may end up having spent hours baking simulation, with the highest settings that your computer can handle, only to find that it completely ignores an object in the scene and has to be re-baked from scratch. It doesn't greatly affect simulation times to add more objects as collision objects, so you can go wild and add absolutely everything other than the cloth itself. At least that way you can be sure that you haven't forgotten anything.

As you may have noticed, if you've tried to use cloth solvers before, self collision and inter-cloth collisions have a habit of failing, but there is a simple solution to this that will be explained in this guide.

Tailor a modern shirt in Blender

01 Set up your dummy

When working with Blender's Cloth solver, it's usually best to work around the final base-mesh. For this scene I'm using a tailor's dummy (available on the cover disc), but normally you can use your character's skin/base-mesh. Work around the base-mesh to avoid breaking the simulation by accidentally intersecting the mesh with the cloth A.

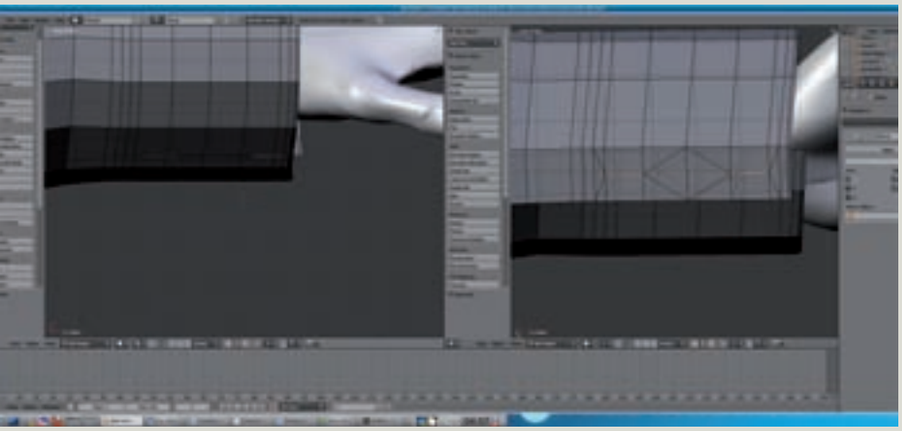
02 Introduce a plane

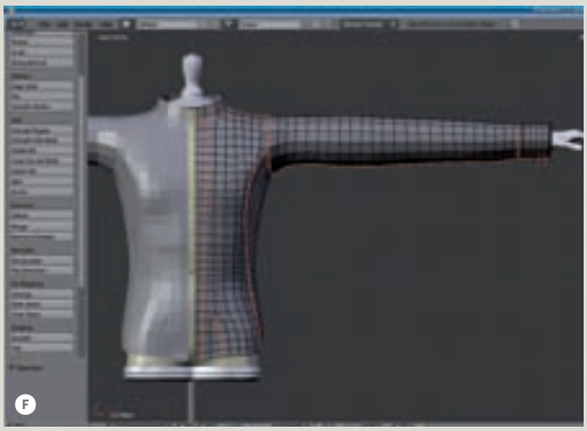
Start by placing a Perpendicular plane to the chest, with the centre of the plane near the top of the navel. Then, in Edit Mode, scale by 50% along the X axis and enable the Mirror modifier in the Modifiers tab. You can now delete the modified plane, but do not exit Edit Mode B.

© Imagine Publishing Ltd
No unauthorised copying or distribution

C

D


E


F

03 Add fixed elements

In order to ensure that you have clean geometry for Blender's Cloth editor to work with, we now need to add some fixed elements. These are the parts that you will form the rest of the shirt around. Good areas for fixed elements include the shoulder/armpit, the collar and the waist. To make these fixed elements, start by loosely following the contours of the base-mesh by extruding and positioning faces around the fixed element area. It is important to remember that everything you do at this point is being mirrored. So check that none of your elements cross the centre of the mesh as this will cause problems when using the Cloth solver C.

Warning: High-processing overheads

As you would expect with any form of higher-level physics, cloth solving uses a lot of processing power and so your simulations may take a number of hours to calculate on lower-powered computers. While this will change in the future, as GPU computing becomes integrated into Blender's Cloth solver, for now, I recommend that you use a computer with at least a Quad-core 2.33GHz processor (or equivalent) in order to achieve a reasonable calculation speed for previewing.

04 Link the elements

Once you are happy with the placement of your fixed elements, you can start to join them together by linking the elements with single lines of extruded faces, as demonstrated in the screenshot. Using those links as a starting point, carefully fill in the rest of the shirt – however, as you go on, make sure that you keep your geometry as clean and as logical as possible for a better finish D.

05 Cuff up

When you have finished filling in the gaps, it's time to complete the cuffs of the shirt. As with any shirt, the cuffs should have a gap, an overlap and a link – to make this, select a line of vertices on the underside of the cuff, enable Proportional Editing, scroll to an appropriate proportion, then press the 'V' key and move the mouse along the Y axis away from the seam. Next, overlap the two sides of the cuff – this is easier if you leave Proportional Editing enabled. When you have the cuff overlapped, subdivide a pair of parallel edges as per the screenshot and make a face that links the two sides of the cuff between the parallel lines. This will create the effect of a button E.

06 Place UV seams

If you intend on using UV texture mapping when you have finished the shirt, it's a good idea to place the UV seams now to save you work later. Make the seams follow the path that they would take in a real shirt. This makes it easier to texture stitched seams as you can follow the edges of the UV islands F.

07 Clips and buttons

Now you need to enable the Clipping option on the Mirror modifier. Check that the back of the shirt meets equally in the middle and that none of the front of the shirt is meeting and being unintentionally 'clipped'. When you're happy that everything's correct, tab out of Edit Mode and apply the Mirror modifier. At this point, you may wish to parent a button to the link that we made in the previous step, by putting the button object in place. Select the button object followed by the shirt mesh, enter Edit Mode, click only on the vertices that you wish to parent it to, then hit Ctrl+P and confirm G.

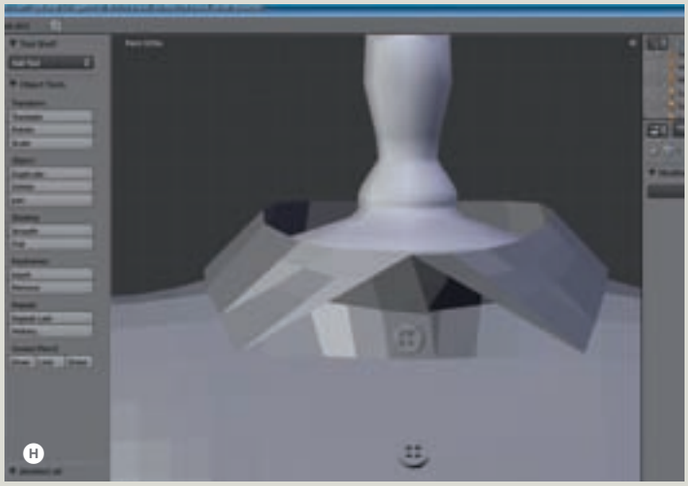
08 Get collared

To finish the shirt mesh, we need to add a collar and to overlap and button the front

© Imagine Publishing Ltd
No unauthorised copying or distribution

Join the community at www.3dartistonline.com

G


H

I

J

of the shirt. Buttoning the front of the shirt is almost as simple as buttoning the cuff; the only difference is that in order to make a realistic shirt, the character's right (or left in the case of a female character) side of the shirt needs to be marginally larger. The easiest way to achieve this is to turn on Proportional Editing, pull the short side to the centre and the long side until it overlaps the short side by about an inch. As far as the collar is concerned, we wanted to have a nice neat two-point, extra wide spread (see screenshot for example) H.

09 Bump up collisions

At this point, it's a good idea to add a Subsurface modifier with a single subsurface to provide the Cloth solver with more vertices to work with, as this will ultimately make the output much more realistic. Enable the Cloth solver by going to the Physics tab and clicking Add under Cloth. Then you need to add collisions to the objects that the cloth will come into contact with, such as your skin/base-mesh. If you're using the tailor's dummy, this has already been done for you. If you press Alt+A now, you will see your shirt start to look real I.

Keeping up with the times

As with any open source project, when you set out to learn a new feature, it is usually a good idea to make sure you have the latest build for your system, as there are likely to be updates that make it either easier to use, faster or provide better results. With the release scheduled for Blender 2.5, this has never been more pertinent. So I highly recommend that you download the very latest Blender Foundation build for your system from **www.graphicall.org/builds** under the Latest Blender Builds column. This will ensure that you have the most cutting-edge software at your fingertips to help you achieve top-quality cloth projects

> If you want to adjust the stiffness of the cloth at certain points, you can add a vertex group and enable it under the Cloth Stiffness Scaling settings

10 Perfecting the shirt

However, it is still far from perfect. There are a number of built-in presets to help you find the right settings for your project. We found that the following settings worked best for the shirt:

Quality Steps:	24
Mass:	1
Structural:	35
Bending:	18
Spring:	45
Collision Quality:	14
Distance:	0.028
Friction:	7.750
Self Collision:	Enabled
Quality:	8
Distance:	0.700

If you want to adjust the stiffness of the cloth at certain points, you can add a vertex group and enable it under the Cloth Stiffness Scaling settings. However, it's important to note that the vertex group overwrites the main structural settings, so you have to set each vertex separately at an appropriate weight J.

© Imagine Publishing Ltd
No unauthorised copying or distribution

3DArtist Questions & answers

Welcome to the Q&A section where we answer all of your technical quandaries on the most popular 3D programs including Maya, 3ds Max, CINEMA 4D, Poser and Vue

Need help fast? Join the The Advisors

Maya
Lance Hitchings
www.hitchingsdesign.com

Lance is our Maya master and in this issue he looks at the best approach to creating top-notch clay renders for contests and presentation to clients

3ds Max
Ryan Knope
www.ryanknope.com

Ryan is our architecture and 3ds Max expert. This month, he demonstrates the dramatic effect lighting has on mood

Maya

Make it in clay

"What's the best way of creating high-quality clay renders?"

There comes a time in the course of any project when you need to submit your mesh for review, whether to a client for approval or to a forum for feedback. You'll need to present a render that is devoid of any textures that might interfere with the study of the geometry and you'll want every detail to be highly visible. This is where knowing how to create a great 'clay' render comes in handy. The best clay renders take a little work but they're worth it. This is the technique that I use.

01 Lights first

As a starting point, we'll pull a quick render with a simple Lambert shader applied to everything in the scene. Our first task will be to set up the lighting and our goal is to create a lighting scenario that has great indirect lighting, but that renders very quickly – particularly if you're doing animations. We'll start with a simple Directional light, set up just to showcase the geometry, not to create atmosphere or mood. The shadows are really harsh, but don't worry, as we'll fix this in the next step A B.

02 Adding an Architectural shader

We'll create the look of indirect lighting by using Ambient Occlusion. But rather than set up a separate render pass, we'll use the AO attributes in mia_material_x, better known as the Architectural shaders. I apply the shader with both Reflections and Glossiness set to about 0.4. As you can see, even with the AO attribute turned on, this doesn't make much difference, except for a nice sheen to the material. We'll fix this by setting the Ambient Light Color to white. You might need to overdrive the white; try setting it to 1.5 C D E.

03 Setting the distance

We'll also use the AO attribute to pull out the fine details. We'll do this by setting the Distance attribute. I applied separate shaders to the model and to the ground and I set the Ambient Shadow Color to different colours for each. Use these colours to show you where the AO node is

© Imagine Publishing Ltd
No unauthorised copying or distribution

growing community at www.3dartistonline.com

CINEMA 4D
Daniel Lovas
http://lovas.cgsociety.org/gallery

Daniel is our resident CINEMA 4D specialist. This time around he takes on the challenge of creating a realistic planet from scratch and setting it in a space scene

Vue
Dominic Davison
www.3dartistonline.com/user/dom1

Dom loves to create realistic landscapes in Vue. In this issue he looks at how to make a scene that plays out above and below water

Poser
Paul Francis
www.3dartistonline.com/user/stormdraingfx

Paul is a former modeller for programmes like *Red Dwarf*, as well as a talented photographer. This month he reflects on Poser's atmospheric effects

Send us all of your 3D problems and we'll get them sorted. There are two methods to get in touch with our team of expert advisors...

Share your woes

Email the team directly with your problem
3dartist@imagine-publishing.co.uk

Or post it on the Q&A section on our forum
www.3dartistonline.com/forum

A

B

C

D

E

F

G

adding shadows to your render. You can use this to help you set the best distance for each shader's AO parameter F.

04 Getting the colour right

For the final colour adjustment, we'll warm up the Ambient Light Color a bit to look like bright sunlight and set the Ambient Shadow Color to a very dark, cool grey. This helps to make the light look more natural G.

05 Final touches

Finally, set the Color attribute of the shader applied to the floor to a much darker grey. This brings the model itself out of the background and, in doing so, draws the viewer's attention H.

H

© Imagine Publishing Ltd
No unauthorised copying or distribution

3DArtist Questions & answers

Welcome to the Q&A section where we answer all of your technical quandaries on the most popular 3D programs including Maya, 3ds Max, CINEMA 4D, Poser and Vue

Poser

Seeing the light

"How do I get visible beams of light in my Poser render?"

Poser people as a group seem to be a bit wary of using atmospheric effects; I suspect it's because it's not immediately obvious how to switch them on or control them. I freely admit that I only recently discovered this side of Poser for myself, having previously spent years perfecting the art of adding such effects in Photoshop. However, once you get the hang of it, you can persuade the Firefly render engine at the heart of Poser to conjure up some beautifully atmospheric results, without having to resort to post-working the effects. Visible light beams are one such effect, which can lift a plain render to a whole new level. For example, the main image here has only one Spot light, but the addition of the atmospheric effects, including the light beams, has helped to give it depth and visual interest far beyond what a flat Poser render would have offered. The trade-off is an increase in the render time, but it's not too excessive and I think the results easily justify the extra time. Once you get the hang of the concept, you'll wonder how you ever rendered without it!

The Material Room

Bizarrely enough, the place to start is under the Advanced tab in the Material Room. You'll see at the top of the screen a drop-down list of all the elements in your scene, labelled Object. In here are all the figures, props and lights, but right at the bottom you'll notice an easily-missed entry labelled Atmosphere. Click on this – it shows a list of parameters, the most important being Volume On, which you need to check and Volume Density; I set this to 0.5 for this particular image. You can leave the other parameters alone for the time being.

Lighting setup

Once you have your lighting setup, you'll need to decide which Spot lights you want to display the volumetric effect. You get to choose at this point, which is extremely important, as the more lights which have the effects enabled, the longer the final render time will be. The option is to be found in the Properties tab for each light where Atmosphere Strength controls the effect – if this is set to 0, the effect is switched off for that particular light. You'll need to go through and set each light individually. In the example here, I only have one light, which I set to 0.01000.

The Atmosphere Strength setting in the Properties box for your Spot light; I wouldn't recommend using a Point or Infinite light

Shadow masks

The simple setup described above will give you a visible cone of light emanating from your Spot light, but if you really want to give it an extra dimension, a shadow mask will make all the difference. I produced a greyscale image of a simple grid in Photoshop, where white allowed the light to pass through and where black blocked the light. This was added to the Spot light in the Material Room, via the Texture Manager and then the light was set to cast shadows in the Properties tab. Using this method, your light beam can really look like it's part of the environment in which your scene is rendered.

A simple greyscale image to break up the light beam; you could also use a black-and-white photo

© Imagine Publishing Ltd
No unauthorised copying or distribution

Join the community at www.3dartistonline.com

Getting in the mood

3ds Max

How do I create different moods with the same scene through different renders?

Lighting is one of the main storytelling elements of a scene. It can provide a feeling of warmth, cold, romance, archaic disarray and so much more. The main way to create different moods in a rendering is through light angles and light colour temperature. This same method is also used to give the notion of early morning, mid-day or early evening.

Using cookies, otherwise known as throw patterns, can be exceptionally useful and often save a ton of time spent creating intricate shadows from outdoors or exquisite lamp shades.

Plan each light carefully and use falloffs to your advantage. Too often, artists get 'light crazy' and place dozens of lights. This may prove fun with testing, although once it comes down to refining the lighting rig, it makes it extremely difficult. Try to keep it simple as long as possible.

Remember, with still renders, you can do wonders very fast in Photoshop, creating different moods and scene feelings through painting in different tones on another layer set to Overlay.

I personally love adding a contrast between warm and cool colours. While mixing cool and warm elements, I find that containing the warm colours in the main area of focus to be quite important.

Night lighting

Creating night lighting in a realistic manner often does not convey a very visually pleasing render. I usually use two methods of conveying darkness without blackening the render out too much.

I used an Omni light to simulate moonlight or other light coming from outside the windows. You can use any number of lights. I used this for simplicity's sake. I did not use a falloff on this light. This usually provides the main sense of 'night' mood, although still keeps much of the render too dark.

I then add a secondary, less intense Fill light inside the room to brighten the area. The Fill light has a falloff touching the bed surface. This will help showcase the details of the room. I tend to use a blue hue with this light.

Day lighting

With the addition of sun and sky systems in just about every package, it has eased some of the stress out of day lighting. Conveniently, the mr Sun and Sky system automatically adjust colour temperatures for different day times and sun locations.

I usually start with adding a mr Sun and Sky system, testing different times of day and angles. Adjusting this can help create beautiful throw and light patterns on the walls and furniture.

Often, only having a Sun/Sky system is not enough though, and mood lighting and Fill lights can help greatly.

Mood lighting

Mood lighting can be the most tricky of setups. As a result, this process requires a bit more work with light location, types, falloffs, etc.

For starters I take out any Fill lights and start off with a blank 'light canvas', so to speak. Focus first on any light fixtures that cover small areas. In my opinion, mood is generally achieved by the mixing of light and dark areas.

Backlit panels, table lamps, pendants and area specific recessed lighting are great places to start.

If you are choosing an early morning or late afternoon scene, then adding a Sun and Sky system can help, otherwise you can add Fill lights in desired locations to add slight illumination.

Keep in mind that lights of different colour temperatures also create exemplary moods.

Light colours and locations are the keys to mood

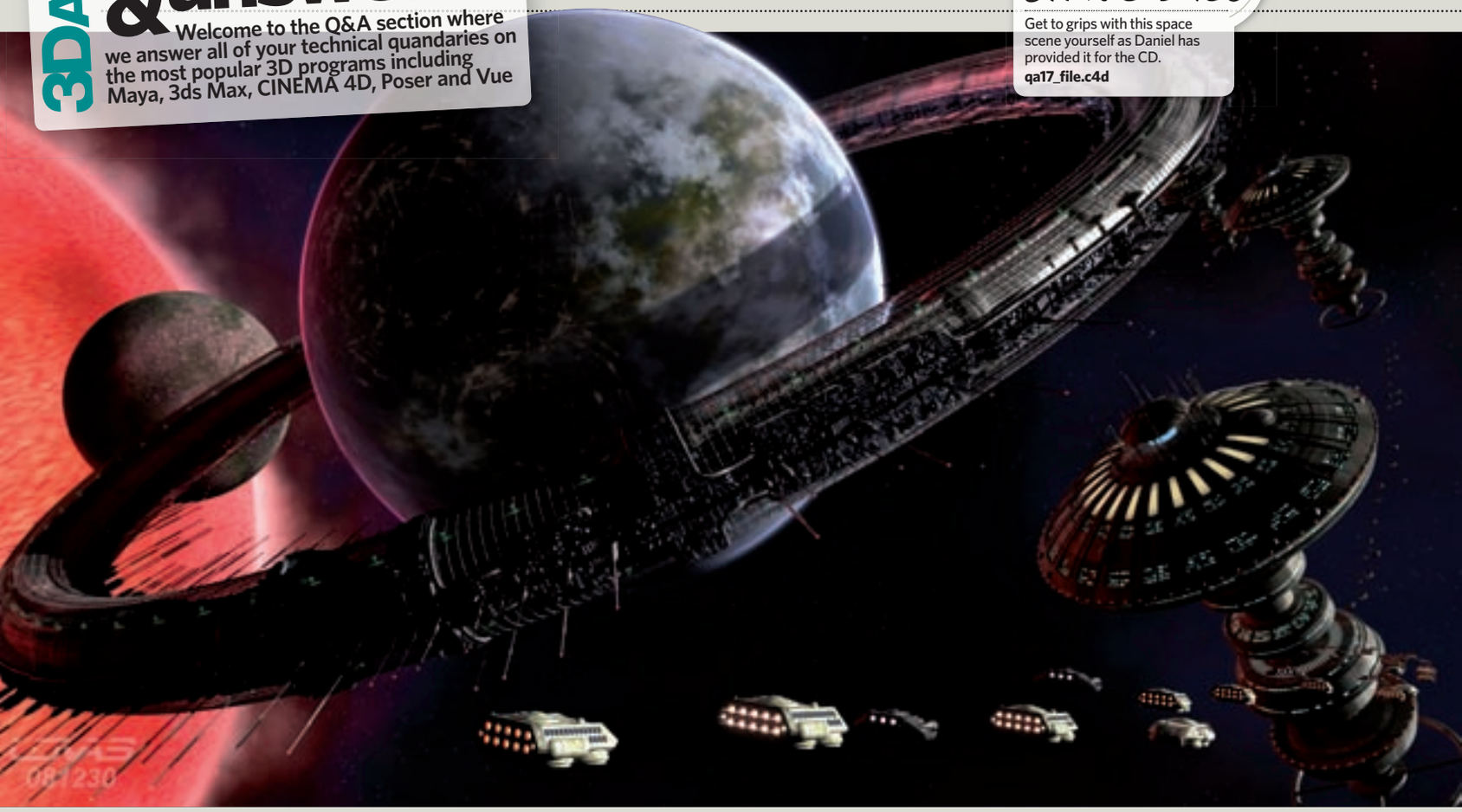
© Imagine Publishing Ltd
No unauthorised copying or distribution

3DArtist Questions & answers

Welcome to the Q&A section where we answer all of your technical quandaries on the most popular 3D programs including Maya, 3ds Max, CINEMA 4D, Poser and Vue

On the Disc

Get to grips with this space scene yourself as Daniel has provided it for the CD.
qa17_file.c4d



Creating the world

CINEMA 4D

How do I create a realistic planet in CINEMA 4D?

Planets might look simple to create in 3D; after all, we all know they are ellipsoids, so in some cases it should be enough to use a sphere primitive with a fractal or even a hand-painted texture applied. For a simple planet that might be okay, if the object is small or in any other way an unimportant part of the image.

In similar cases you might even consider using a camera-oriented 2D plane with a photograph or drawing of a planet and an Alpha texture. That's also great for planets, satellites and other sky objects that you need only as sky 'decoration' when creating an exotic, extraterrestrial landscape. The additional plus of this particular method is that you can control the transparency in order to integrate the planet much better with the sky background, thus simulating a haze effect.

In this short tutorial, I'm going to explain how to create a 3D planet for a more demanding project, which is more integral to your scene and so needs to look very convincing even in high resolution and from shorter distances.

Even though most of the human population have never been in space, we are bombarded every day by photographs of Earth or some other planet or moon of the solar system, thanks to the various space agencies and to the internet. As a result, your target audience has quite a definitive (though perhaps a bit Earth-biased) idea of what a planet 'should' look like from space, especially if they are science fiction fans.

The tutorial will assume that we are creating an Earth-type planet and not a gas giant, even though the described procedure could be used for that purpose as well. Most planets of the Earth/Mars size have atmospheres and some have oceans.

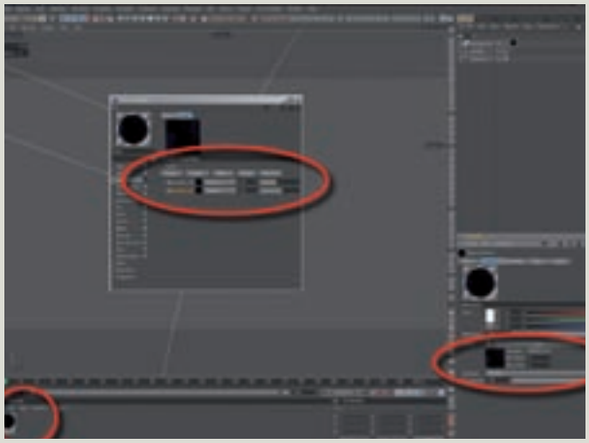
With atmosphere comes clouds. The atmosphere is usually of a blush tint due to the diffraction of light when passing through layers of gas. Oceans reflect back the colour of the sky (not necessarily blue, it can also lean towards magenta or cyan) and oceans also have different specularity to land or clouds. Clouds are usually white and (if you are creating an animation) tend to move and change shape over longer periods of time, independently of the rotation of the planet. Such a detailed model of a planet should be done in a layered manner, meaning more than a single sphere will be needed.

Why fractals?

The border between an ocean and a continent or between a cloud and the atmosphere surrounding it is irregular in a very special and unpredictable manner. Such borders are referred to in everyday speech as 'fractal borders'. They appear in nature whenever two or more different physical elements interact over time, due to physical non-linearity of the process. You can also observe fractal structures where air and continents meet (mountains) or where oceans and air meet (waves). Calculating fractals involves lots of iterations and – luckily for us – that's what computers do best. That's why the Noise shaders are particularly useful for creating planets.

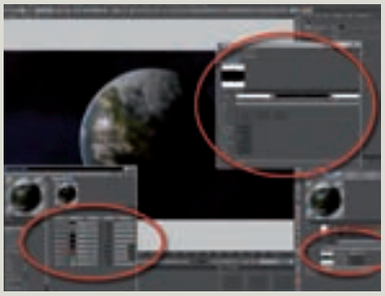
© Imagine Publishing Ltd
No unauthorised copying or distribution

Join the community at www.3dartistonline.com



01 Preparing the scene

Create a starfield background before making the planet as you will have to adjust the atmosphere appearance against it later. Create a new material with all channels off except for Luminance. Add the Layer shader there and, in its settings, add a starfield texture and a nebulae texture with the Screen option. Use raster images as I did or the built-in Starfield shader and one of the Noise shaders for the nebulae. Apply it to a Background object.



02 Planet surface

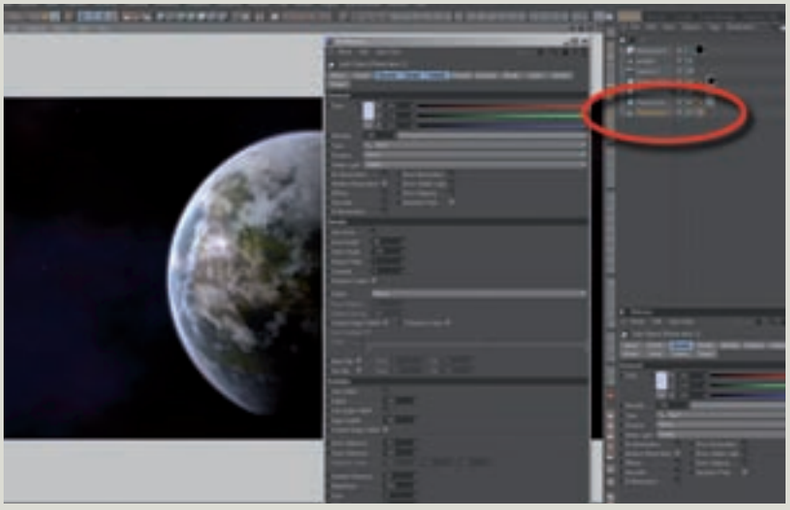
In the surface material's Color channel, add the Layer shader. In its settings, first add three FBM noise layers with various dominant colours (see the screengrab). Add another three FBM noise layers with dominant black on a solid colour. For snowcaps, add the Gradient shader layer and set it as shown. Experiment with various Noise settings and – most of all – make sure to use different Seed values for each. Apply the material to a sphere, sized 200.

03 The clouds

When creating the cloud material, the Alpha channel is the most important one, so set it up first. Use two Noises in the Layer channel, the lower should be FBM, as per the screengrab. You'll have to play with the settings a bit here until you get the right cloud cover. A Noise shader in the Bump channel will give some volume to the clouds. Finally, use two layered Noises in the Color channel as shown on the screengrab. Apply to a new sphere, sized 201.8.

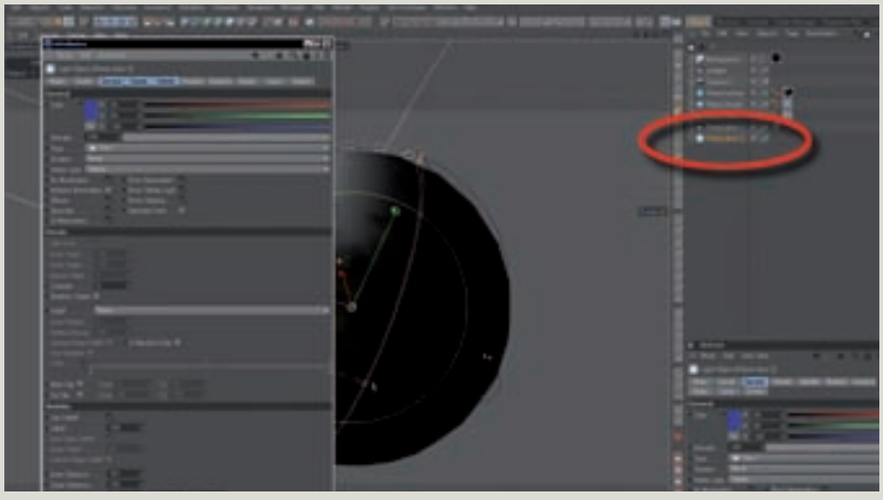
04 The haze

The haze material should have the Color, Transparency and Alpha channels activated. Alpha: add a Fresnel shader and set it up as shown. Transparency: set Brightness to 79 and check the Additive option. Color: set the Color to (194, 194, 255), add a Noise shader as shown on the screengrab, leave the Mix Mode on Normal and set the Mix Strength to 51. Apply to a new sphere, sized 201.9.



05 Atmosphere 1

Add a Spot light and put it in the centre of the spheres. In the General tab, set Visible Light to Visible and activate No Illumination. Set Color to (203,210,255). In the Details tab, set Inner Angle to 90 and Outer to 175. In the Visibility tab, activate Use Falloff and Use Edge Falloff and set them both to 100. Set Inner Distance to 101, Outer Distance to 105 and Brightness to 300.



06 Atmosphere 2

As the final touch, in order to slightly improve the atmosphere, duplicate the previously created light and rename it. Change the Type to Omni and Color to (55,60,140). In the Visibility tab, adjust Brightness to 50. If you intend to use the planet in an animated sequence – to make the appearance even more realistic – you can animate an extremely slow Y rotation (every object in the orbit will circle the planet unless geostationary).

© Imagine Publishing Ltd
No unauthorised copying or distribution

3DArtist Questions & answers

Welcome to the Q&A section where we answer all of your technical quandaries on the most popular 3D programs including Maya, 3ds Max, CINEMA 4D, Poser and Vue

Above and below water

Vue

How do I create a split water scene, half under, half above the water?

With Vue, the only limitation is your own imagination and that certainly applies to a split screen environment. What this tutorial will demonstrate is the ability to fool the viewer into believing they are looking at two different worlds, when in fact there is only one. It is an illusion.

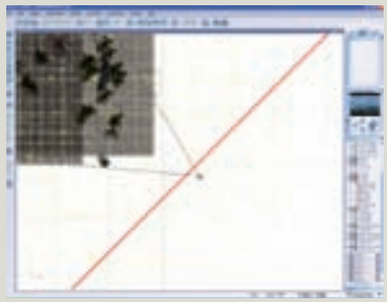
Working in 3D allows you to achieve this. It can also achieve the sense of distance, for example by simply adding the same object, such as a house, at certain points towards the horizon. It can show scale by placing a human figure alongside a building, to illustrate the size and height of that structure.

In this tutorial, because we are using a plane for our water, we can manipulate it and place it anywhere we want. You could alternatively use a standard terrain and convert that to a water material. This can then act as a water feature, such as a river, pond, lake or even a small pond. By placing the water plane close to the camera, without actually touching it and tilting the camera slightly towards the water, we see both above and below the surface.

The atmosphere settings are vital in order to create a difference in the way the above and below surface worlds appear. By using the Falloff feature in the Fog settings, we can quickly add fog to a specific area – in this case, the lower half of the whole scene ie underwater. We can then adjust the amount of fog we want to fill that area. Without this effect, the split screen would only be separated by the water plane. The above and below surface properties can be distinguished even more by adding caustic lighting. Don't forget to add fish and underwater plants, or perhaps birds in the sky, found in the Vue animal and plant folders for a finishing touch.

01 Adding the water plane

Open a new scene and select a plane. Increase its size to fill most of the screen. Now double-click the Material screen in the top right and change the plane to one of the liquid materials. For this tutorial Wavy Water was chosen. Increase the Bump settings and scale to add more waves. This will act as the ocean for the scene.



02 Positioning the plane

Select the 'ground' and change it to a dark green landscape material. Move it below the main camera and water plane. Select the water plane and move it close to the camera and just below. Your preview screen will tell you when you can see both above and below the surface. You can, of course, add terrains with marine ecosystems to the ground, as well as fish etc.

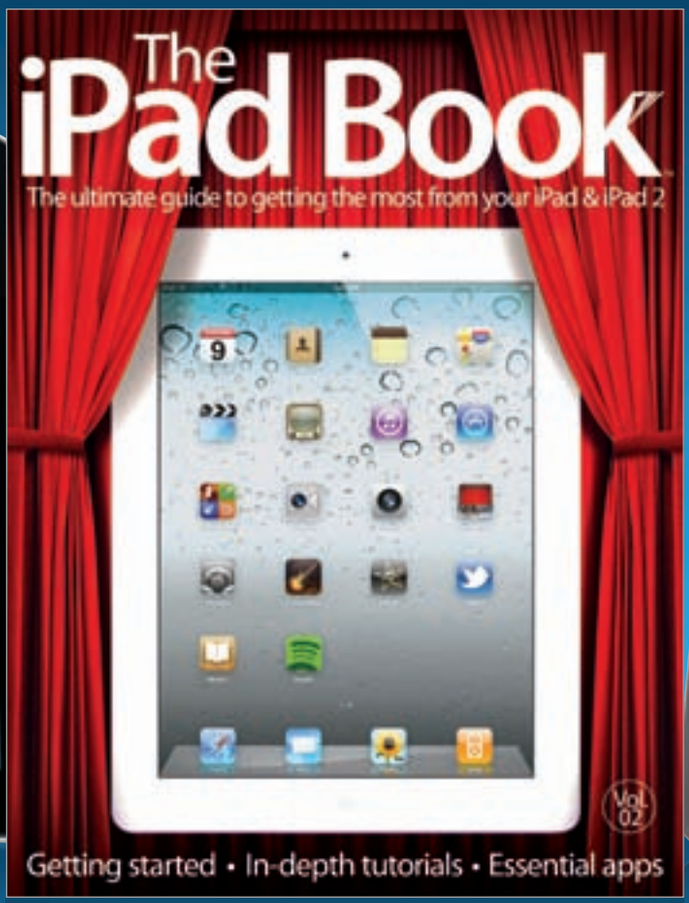
03 Underwater atmosphere

To make the underwater area look cloudy, you will need to adjust the fog and haze. By selecting a Standard atmosphere, change the Fog and Haze colours to a dark marine blue. Set the Density of the fog to 57% and Haze to 31%. The Falloff setting will determine how much fog there is underwater; for this scene, 4% was selected. Set the fog to gather at a low altitude. A photograph/Alpha plane was used as the sky backdrop.

© Imagine Publishing Ltd
No unauthorised copying or distribution

Learn in style

iPad


The
iPad Book
The ultimate guide to getting the most from your iPad & iPad 2
Getting started • In-depth tutorials • Essential apps
Vol 02

Printed full colour large format book

Kindle

The Book™ Series

Discover more with the Book series' expert, accessible tutorials for iPad, iPhone, Mac, Android, Photoshop, Windows and more

Also in this series

Bookazines
eBooks • Apps
www.imaginebookshop.co.uk

Now available on

HIGH ST. BUY IN STORE
High street

amazon
Kindle Store

ip
ImagineShop.co.uk

App Store

3DArtist

Back to basics

Online CG guru Digital-Tutors explains what caustics are and how to use them to best effect

MAYA

Getting started with caustics in Maya

A

> Providers of the largest online computer graphics training library, Digital-Tutors is proud to present a step-by-step lesson in using caustics in Maya

Caustics enable you to create breathtaking patterns of reflected or refracted light within your rendered image. When rendering scenes that incorporate liquid, glass and reflective metal objects, it is important to include these focused patterns of light. However, caustics can be challenging to work with and mastering them takes patience and practice. In this tutorial, Digital-Tutors will help you to understand some of their core features and will teach you how to begin using caustics to push your work to the next level of realism.

In the real world, the term 'caustics' refers to patterns of light that are created as light is either reflected off a surface or refracted through it. If you want to create renders of glass, liquid or reflective surfaces that are as realistic as possible, it's important you incorporate caustic light patterns into your scenes. In mental ray, these light patterns can be simulated using caustic photons.

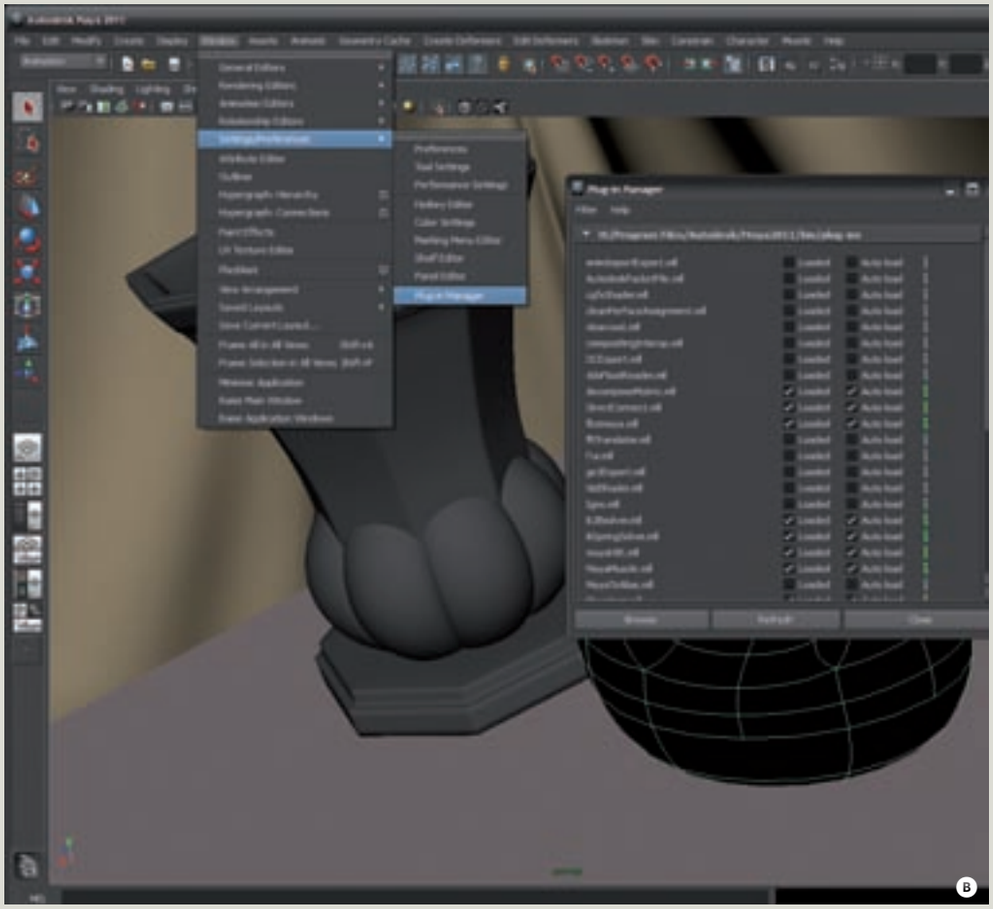
In Maya, these caustic photons are emitted from a light source and travel along the same path as any direct illumination. So, if you emit photons from a Point light they will be shot out in all directions, the same way that a Point light emits direct illumination in all directions. On the other hand, if photons are emitted from a Spot light, they can be shot into a much more focused area of your scene by simply pointing your Spot light to the desired area.

When a photon is emitted from a light source, it is born with a certain amount of energy which gradually decays as the photon travels through 3D space. Keeping this in mind, one of the most important factors to consider is the placement of your photon-emitting light source. If your light is far away from your

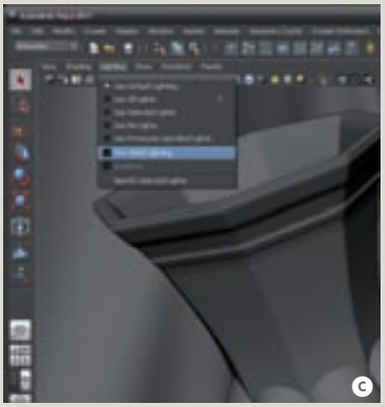
A This image uses caustic photons to create intricate patterns of light

© Imagine Publishing Ltd
No unauthorised copying or distribution

Join the community at www.3dartistonline.com



B



C

Adjusting Raytrace settings

When rendering refractive materials such as glass or liquid, it may be necessary to increase the number of refraction ray bounces that are calculated at render time. Open the Render Settings, go to the Quality tab and click on the Raytracing header. Increase the number of reflection and refraction bounces as needed. Make sure that the Max Trace Depth is set to the combined value of the reflection and refraction bounces. For example, if you have 5 Reflection bounces and 5 Refraction bounces, set the Max Trace Depth to 10.

photon-receiving objects, the photons may lose all of their energy before they reach their destination, resulting in no visible caustic patterns.

There are several solutions to consider if your photons are losing all of their energy before they reach their destination. One answer is to move your photon-emitting light closer to your object, giving the photons a shorter distance to travel and ensuring they still have plenty of energy once they reach your photon-receiving object. If moving your light is not an option, you can increase the amount of energy contained in the photons when they are emitted from your light. By boosting this energy value (which Maya refers to as Photon Intensity), you can make sure that the photons have enough energy to reach their intended target. A third option is to adjust the photon's Exponent value, which controls how rapidly a photon will lose energy as it travels through space. The default Exponent value of 2 will provide a physically accurate energy falloff, but by lowering this value, the photons will lose their energy at a slower rate, allowing the photons to travel greater distances without losing as much of their energy.

Achieving highly detailed caustic patterns will typically require a high number of photons. Depending on the level of detail you are trying to capture, you may need to use upwards of 1,000,000 caustic photons. Keep in mind that increasing the number of photons will also result in longer render times. In Maya, a light's direct illumination values and its photon energy values exist completely independent of one another. This means you can create lights that are able to cast photons into our scene without contributing any direct illumination. This is especially useful if you want to simply add caustic effects into your scene without altering your existing lighting.

Once you have the photons cast into the scene with the proper energy values, you may need to open the Render Settings in Maya to make further adjustments. Inside the Indirect Lighting tab, you can expand the Caustics area to access settings that control the rendered smoothness of your caustic photons. The Radius attribute controls the distance around which a photon will search for neighbouring photons. Neighbouring photons found in that radius will be blended together, giving a smoother result. The Accuracy setting controls the number of photons used to determine caustic brightness. Higher values give smoother results but also increase render time. Lowering this value can make your caustics appear sharper, but may also make the caustics appear spotty.

Within the Hypershade, you have independent control over the surface material and the material that is used for photon calculation. This is particularly useful when you have some sort of glass or liquid material that looks great, but where perhaps the caustics could use a little more vibrant colouring. Our solution would be to select the glass or liquid material in the Hypershade and click on the Input and Output Connections button in the Hypershade toolbar to expose the material's Shading Group node. Now you can add a new Photonic Material from the Hypershade nodes list and connect it into the Photon Shader input of the Shading Group node. The Dielectric photon material is a good choice for glass, liquids and other refractive surfaces. Once it has been connected, the rendered photons will derive their appearance from the photonic material, but the actual surface material will remain unchanged.

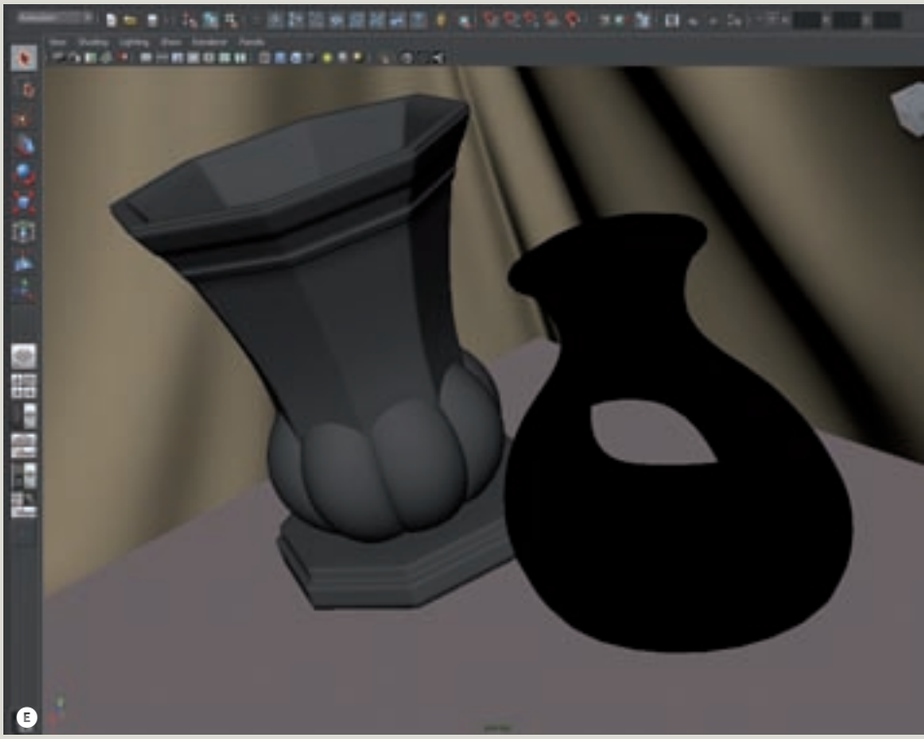
B Make sure the mental ray plug-in for Maya is loaded

C Check to see that none of your geometry suffers from flipped normals

© Imagine Publishing Ltd
No unauthorised copying or distribution

3DArtist Back to basics

D



E

F

G

Putting it into practice

01 Make sure the mental ray plug-in is loaded

Caustics are a feature of the mental ray renderer, so you need to make sure that the mental ray plug-in is loaded. Go to Window>Settings/Preferences>Plug-in Manager. Within the Plug-in Manager, look for the 'Mayatomr.dll' plug-in, and enable the Loaded and Auto Load checkboxes C.

02 Check the normals on your geometry

When working with physically accurate refractive materials such as the mental ray Dielectric or mental ray MIA_material, the normals of your geometry are critically important. To check your scene for flipped normals, go to your Perspective view, and then go to Shading>Use Default Material. Now go to Lighting>Two Sided Lighting and disable that option. If any objects in your viewport turn black, then they have flipped normals. For polygon objects, select the object and go to Polygons> Normals>Reverse. For NURBS objects, go to Surfaces>Edit NURBS>Reverse Surface Direction D.

03 Place a Spot light

Spot lights are a good choice for caustic photon emitters. They allow you to direct a high number of photons into the precise area of the scene where they are needed, minimising any wasted photons. Select your Spot light, go to Panels>Look Through Selected Camera, and aim your Spot light directly at the objects that require caustics E.

04 Enable caustics on the Spot light

Select the Spot light and press Ctrl+A to open the Attribute Editor. Click on the mental ray header to expand it, look for the Caustic and Global Illumination header and then enable the Emit Photons checkbox in that area F.

05 Enable Caustics in the Render Settings

Even though you've enabled caustics on the light, you still need to enable the feature that will allow these caustics to be calculated at render time. To do this, open up the Render Settings, go to the Indirect Lighting tab and click on the Caustics header to expand this area. Enable the Caustics checkbox and now try rendering your scene G.

06 Adjust photon energy

It's important to note that the settings used here will vary greatly from scene-to-scene and will be determined primarily by the distance between the photon-casting

D Spot lights allow caustic photons to be directed to a specific area of your scene

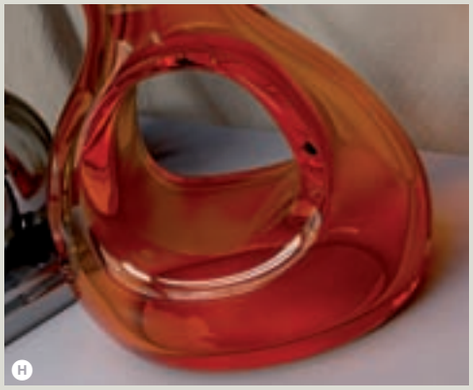
E Enable the Emit Photons checkbox on your light source

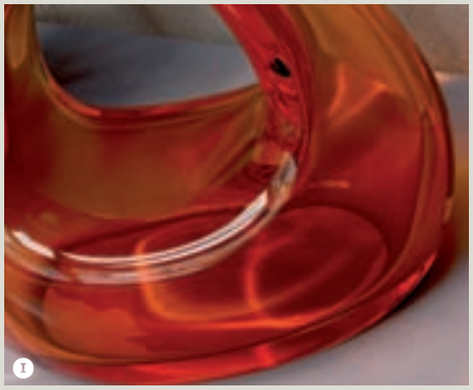
F Enable caustic calculations in the Render Settings

G Caustics are now being rendered but, at this stage, they are difficult to see

© Imagine Publishing Ltd
No unauthorised copying or distribution

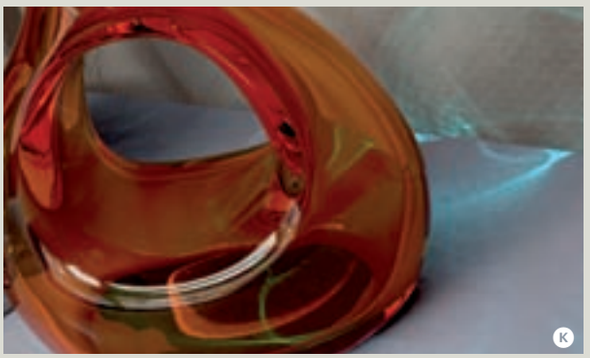
Join the community at www.3dartistonline.com





Directional lights and photons

Don't use Directional lights for any type of photon emission. Although Maya will allow you to emit photons from a Directional light, it's not recommended. Since a Directional light has no origin, it will unnecessarily cast photons throughout your scene where they are not needed, which will significantly increase your render time. Spot lights and Point lights can act as much more efficient photon emitters.



light source and the photon-receiving objects. In this example, the light has been placed roughly 10 units from the photon-receiving objects. The light is using the default Photon Intensity value of 8,000 and the default Exponent value of 2 H.

07 Disable the light's direct illumination

Often, you may wish to introduce caustic effects into your rendered images without altering the look of your existing lighting. Maya allows you complete independent control over a light's direct illumination settings and its photon energy settings. This enables you to create lights that act solely as photon-emitters, which do not provide any additional direct illumination in your scene.

Select the Spot light, open the Attribute Editor and set Illumination Intensity to 0. You now get bright caustic photons from this light but no direct illumination I.

08 Adjust the number of photons

Getting highly detailed caustic patterns typically requires a high number of caustic photons to be emitted from your light source. It's not unusual to use upwards of 1,000,000 photons depending on the amount of detail you need to capture. Just remember that increasing the number of photons in your scene will also increase your render time.

When testing your scene, initially it's a good plan to start with a lower number of photons and gradually increase the number until you find a suitable value. This particular image is using 500,000 photons J.

09 Alter caustics attributes in the Render Settings

Once you have opened up the Render Settings, go to the Indirect Lighting tab and down to the Caustics header. The caustic Radius controls the distance around which each photon looks for neighbouring photons in order to more effectively blend their lighting results together. Higher values generally produce smoother caustic patterns, while lower values produce much sharper results but run the notable risk of spottiness in the caustic pattern. Bearing this in mind, when lowering this value, you may need to cast more photons from your light in order to minimise spottiness.

This image uses a caustic Radius value of 0.1 with 1,000,000 caustic photons being emitted from the light source K.

10 Create a new photonic material via the Hypershade

For the final step, open the Hypershade and select the glass material. Click the Input and Output Connections button in the Hypershade to expose the glass material's Shading Group node. Back in the Hypershade, go to the mental ray Photonic Materials section, add a dielectric_material_photon shader and set the colour to a shade of blue.

Double-click on the glass material's Shading Group node and then click on the mental ray header. Scroll to the Custom Shaders area, middle-click on the dielectric_material_photon node and drag it into the Photon Shader input of the Shading Group node. Now, when you render, the photons should be tinted blue, but the vase itself remains orange.

H Disabling the light's direct illumination makes the caustics much easier to see

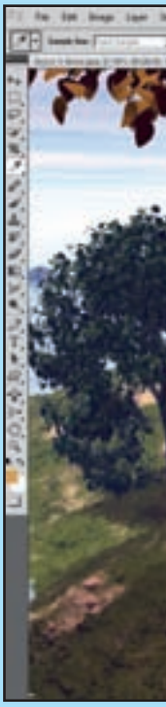
I Increasing the number of photons creates more detailed caustic patterns

J Altering caustic photon Accuracy and Radius settings in order to get sharper caustic patterns

K Surface colour and photon colour can be controlled by two completely different materials

© Imagine Publishing Ltd
No unauthorised copying or distribution

Using a combination of simple 3D elements, comprehensive lights and image adjustments, 3D in Photoshop works well



Adobe Photoshop CS5 Extended £933

Photoshop CS5 Extended offers a host of useful and powerful features for the 3D artist, but it doesn't come cheap

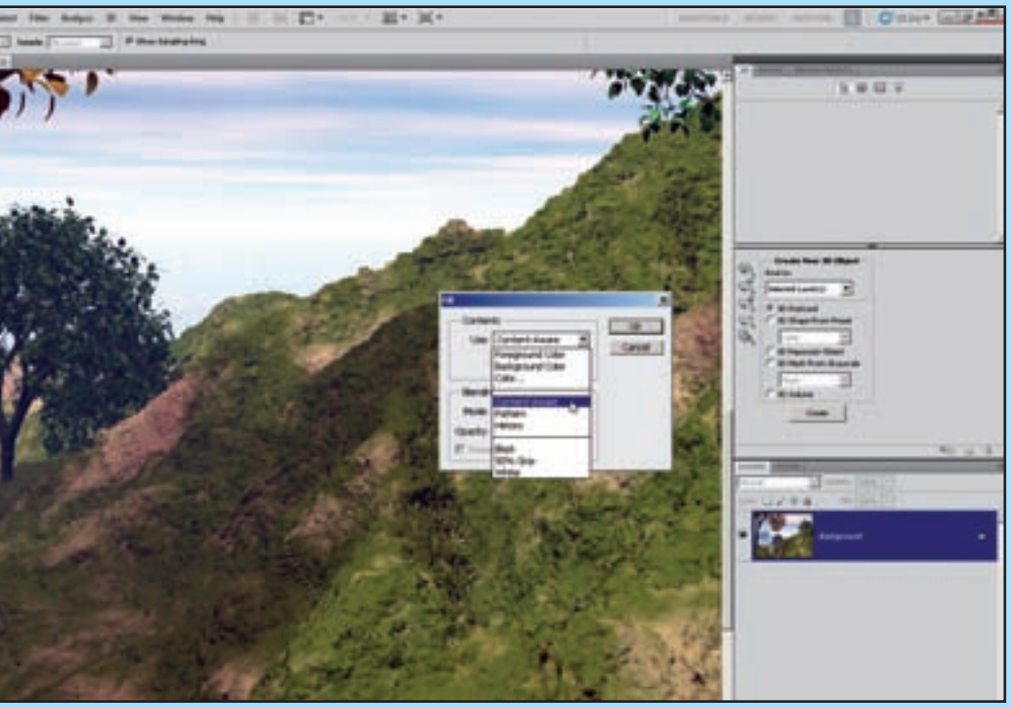
As a 3D artist, you may have looked at Photoshop in the past, and quickly reached the conclusion that it's only useful for compositing layers, tweaking colours and fixing flaws. It wasn't really there as a 3D tool per se. However, with the advent of Photoshop CS5 Extended, there may just have been enough changes and improvements in the software to justify its place in the 3D image creation armoury. Leaving 3D aside initially, CS5 offers a vast range of powerful tools and techniques for polishing and finishing your rendered images. In CS5, layer management has been improved, giving you the opportunity to control Opacity and Fill across multiple layers in one shot, including adjustment layers, so that targeted colour and tonal adjustments can be achieved in no time at all and completely non-destructively. In terms of retouching your finished 3D renders, the new Content-Aware retouching technology allows seamless retouching with breathtaking simplicity and speed.

Layer Styles, for which in CS5 you can now save your own default values, can be used to quickly add a whole host of seamless effects such as glows, gradients and strokes to your final images – and even to add effects to actual 3D models.

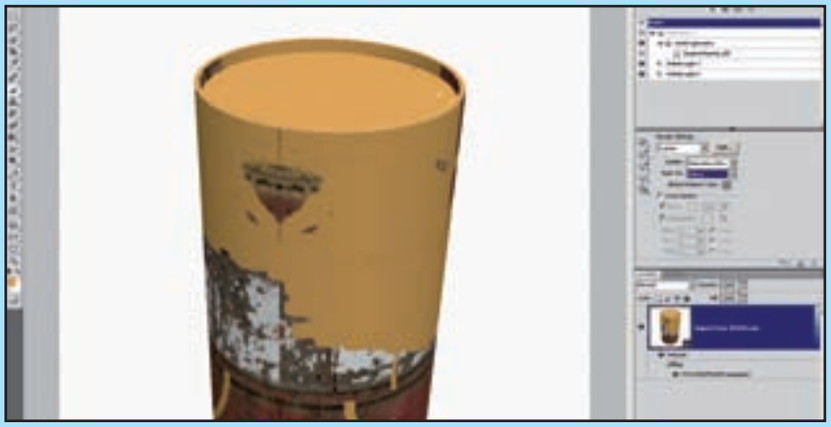
Turning to 3D specifically, Photoshop Extended now embraces 3D technology and workflow in a much more comprehensive way. Open many 3D formats directly or even import existing 3D models and meshes to individual 3D Photoshop layers. With your mesh loaded, you'll find all the usual tools for positioning and scaling your models within 3D space. You're even able to add a range of custom lights, with the ability to adjust every aspect of lighting, including using and creating your own custom image-based lights. Of course, this being Photoshop, you'll even be able to paint directly on any imported models, using the vast range of brushes you'd expect from this application.

It's not just about working with existing imported models, though. You'll also find a surprising number of ways to create 3D elements entirely from scratch, thanks to CS5's much talked about Repoussé feature. Using the Repoussé tool, you can now create superb 3D type directly from standard Photoshop Type layers. As well as type, you

© Imagine Publishing Ltd
No unauthorised copying or distribution



The new Content-Aware cloning and retouching technology allows you to retouch a finished 3D scene seamlessly and quickly



Use any of the Photoshop painting tools to paint directly on imported 3D meshes, or on Repoussé models you've created

can make 3D postcards from 2D image files and even create 3D elements from simple paths, selections, gradients and layer masks. There's also the technology to create a range of basic geometric primitives directly.

Photoshop CS5, hand in hand with the Repoussé facility, offers a wealth of materials and surfaces, with an endless number of ways to adapt any materials and surfaces you choose. At first glance, the Repoussé technology may look rather basic and simplistic, but it quickly becomes clear just how comprehensive and flexible it is, offering a vast range of control over every kind of extrusion property imaginable.

Essentially, the beauty of 3D in Photoshop is that, as well as many of the traditional 3D capabilities, you have the distinct advantage of being able to merge and combine aspects of 3D creation with the more comprehensive range of traditional 2D image adjustment and enhancement techniques; all with the reassurance of seamless Photoshop control and accuracy.

In many ways, Photoshop CS5 Extended gives you the best of both worlds and certainly has enough strengths to make it a considerable 3D artist's workhorse. It's particularly useful as a dual-purpose introduction to both 3D and image adjustment for the more novice 3D artists out there.

Where CS4 paid only lip service to 3D, CS5 obviously takes it far more seriously. One can only assume that CS6 will blur the boundaries between the second and third dimension even more.

The good & the bad

- ✓ Impeccable image adjustment
- ✓ Fast ways to create simple 3D elements
- ✓ Native 64-bit speed and RAM capability
- ✓ Painting directly on 3D meshes
- ✗ Expensive as an image editor alone
- ✗ Limited range of importable file formats
- ✗ 3D controls can be clumsy in use
- ✗ Limited to basic 3D models

Essential info

www.adobe.com
£932.95 inc VAT

OPERATING SYSTEMS
- Windows XP, Windows Vista or Windows 7
- Mac OSX v10.5.7 or v10.6

OPTIMAL SYSTEM REQUIREMENTS (PC)
- 1GB RAM
- 1,280 x 800 display
- Open-GL Graphics card, 16-bit colour and 256MB VRAM

Via Repoussé, you can easily create 3D type, 3D extrusions and choose from many available materials

Our verdict

Features	6/10
Ease of use	6/10
Quality of results	8/10
Value for money	6/10

"A good all-rounder for 3D novices, but a pricey image-finishing tool for those using other 3D software"

Final Score 7/10

© Imagine Publishing Ltd
No unauthorised copying or distribution

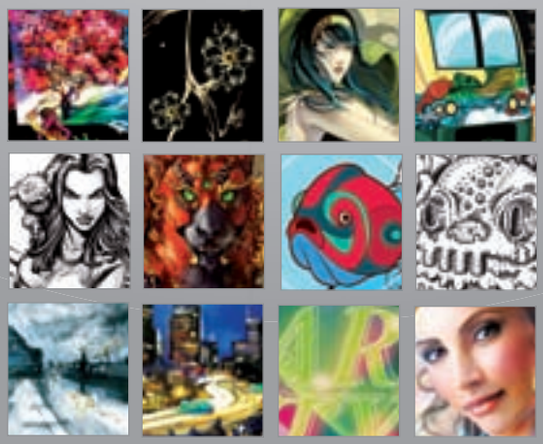
The only digital art magazine to cover all styles and software

Visit our website
Create a free gallery
www.digitalartistdaily.com
today!

On the free CD

Tutorial files, free resources & more

- Expert video tuition
- Art source materials
- 100s of free resources



Inside each issue:

- **Illustration** Learn professional drawing skills and new ways to present your work digitally
- **Painting** Discover how you can create incredible digital paintings
- **Design** Explore typography, product and graphic design
- **And much more!** Master key techniques and the latest trends

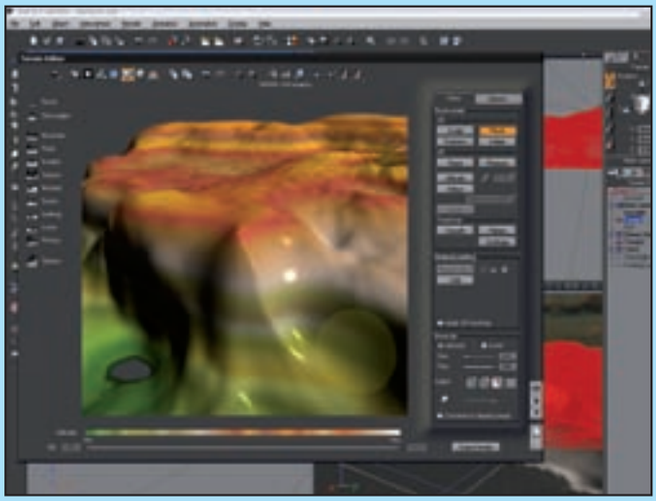
Buy your copy now!

From all good newsagents, or subscribe and save money today – www.imagineshop.co.uk

© Imagine Publishing Ltd
No unauthorised copying or distribution

Vue 8.5 Infinite $895

The world's best landscape creation program reaches the mid-year release point



Although it might seem strange to have another release shortly after Vue 8.4, the real question is why launch 8.4 at all when 8.5 was scheduled for a mid-year release with new versions now coming every year?

Anyway, there are more new features and more performance tweaks. For landscape sculpting, there are four new brushes: Pinch, Flatten, Plateau and Unislope, which are all welcome, as is the reference bitmap option. This enables a reference photo to be loaded into the Terrain Editor to view it as a base template as the landscape is sculpted into 3D. The other interesting improvement in terrains is the ability to extract an area of a procedural terrain so you can create customised textures on specific areas.

When painting materials and EcoSystems, there is now unlimited material painting for very complex distribution and faster population of the EcoSystem painter. Also, the underlying materials and population rules can be applied to the instances so slope, altitude and colouring have an impact. The other main area, besides performance issues, is that of cloud control. More animation control and cloud layers can now be manipulated as individual objects, allowing for real control over the sky.

This is a sizeable upgrade from version 8, though not, perhaps, that dramatic from version 8.4. However, it all keeps Vue ahead of the competition.

www.e-onsoftware.com

Our verdict

Features	8/10
Ease of use	8/10
Quality of results	8/10
Value for money	8/10

"Continues to evolve and get better with every release, though not an essential upgrade"

Final Score 8/10

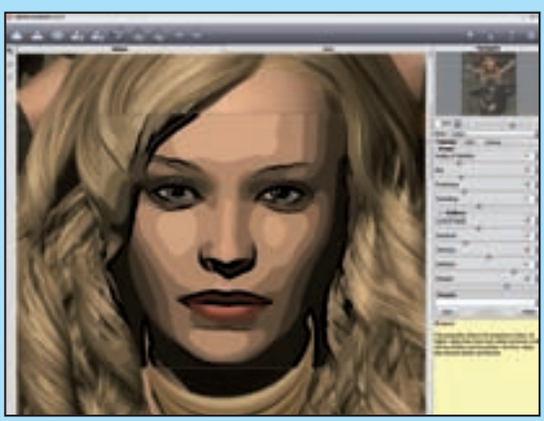
AKVIS ArtWorks 3.5 $72–$189

Disappointed with your renders? Don't delete, turn them into pieces of art

We've all churned out renders that in the cold light of day didn't really hit the spot. Or perhaps you're just interested in seeing some of your favourite images in a different light. Whatever the reason, ArtWorks 3.5 will be of interest because it takes basic images – renders or photos – and turns them into works of art. The program installs either as a standalone, or as a Photoshop-compatible plug-in and the licence and thus cost, depends on whether you're running the program at home for fun or in a business environment. The interface is immediately familiar to any user of previous versions or, in fact, of AKVIS Magnifier as they share the same idiosyncratic operation.

The basic operation is simple – drag and drop an image into the work area, there's a close-up box that previews the effect and on the right side, a list of parameters controls how it all works. The main options are to create Oil, Comics or Pen and Ink styles, but that's it, which is pretty disappointing. The options for the main settings control stroke details such as Length and Thickness and there are options for determining how heavy it all looks. A few presets make life a little easier. The image can also be painted onto a canvas background or have text added.

The Pen and Ink effect is okay, the Oil effect is quite good and the Comics effect is very good. However, there's no getting away from the fact that there are essentially only three styles on offer, which doesn't represent particularly good value.



© Imagine Publishing Ltd
No unauthorised copying or distribution

http://akvis.com

Our verdict

Features	6/10
Ease of use	9/10
Quality of results	8/10
Value for money	5/10

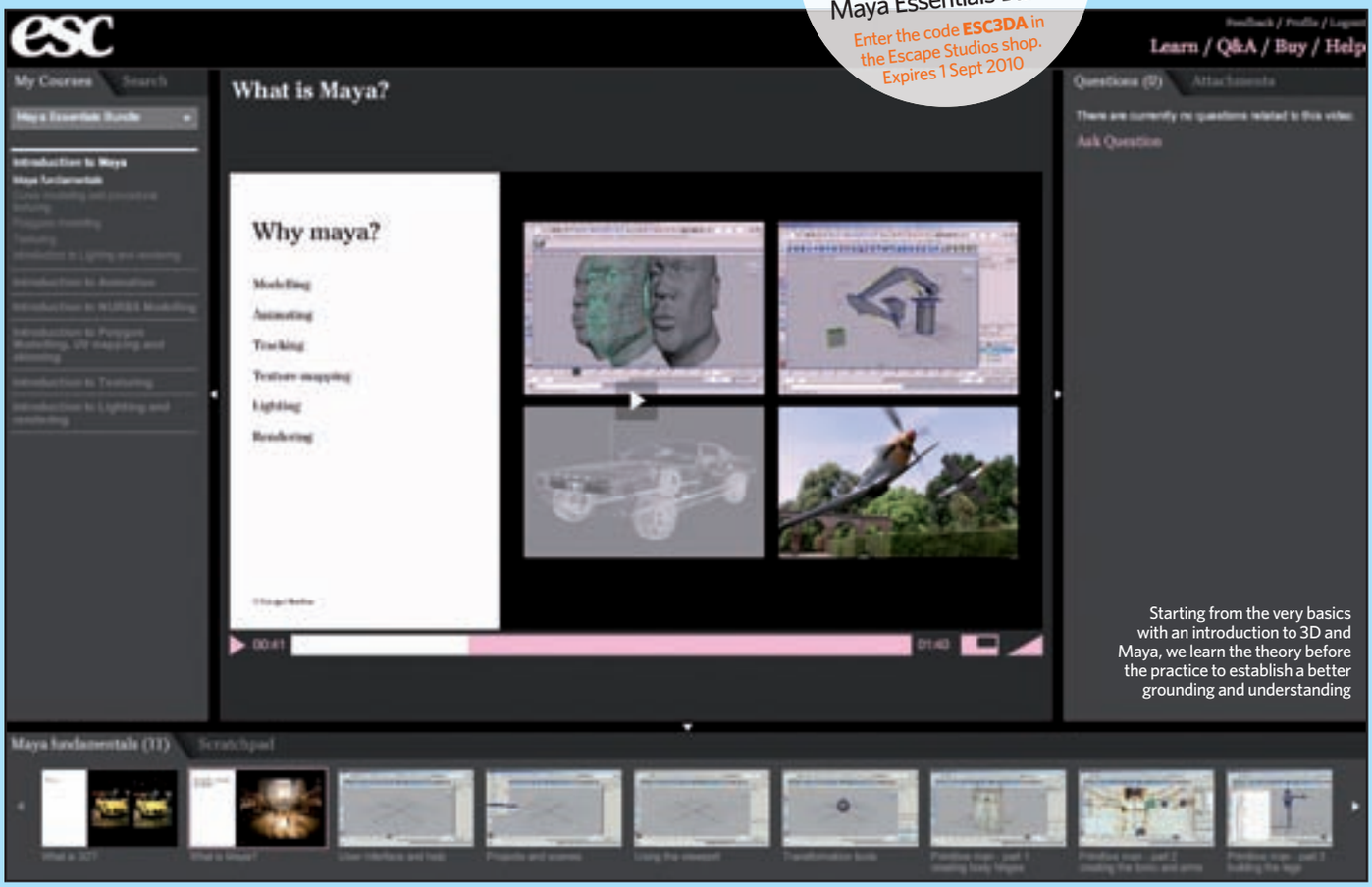
"Good at what it does, the Comics function is great, but there's not enough styles on offer"

Final Score 6/10

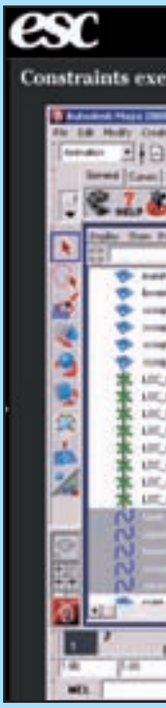
Reader discount offer

Exclusive! 15% discount for **3D Artist** readers on the Maya Essentials Bundle

Enter the code **ESC3DA** in the Escape Studios shop. Expires 1 Sept 2010



Starting from the very basics with an introduction to 3D and Maya, we learn the theory before the practice to establish a better grounding and understanding



Maya Essentials £596/£298

Self-paced tutorials that will prepare you for the real CG world

Escape Studios online training has been created by the highly experienced professionals who teach the same syllabus in the Escape classrooms. Those who can't get to London or afford the onsite training now have the chance to develop the necessary skills to get a job in the industry, studying at their own pace with intensive classes that have been recorded and laid out so students have all the steps to complete the tasks at home.

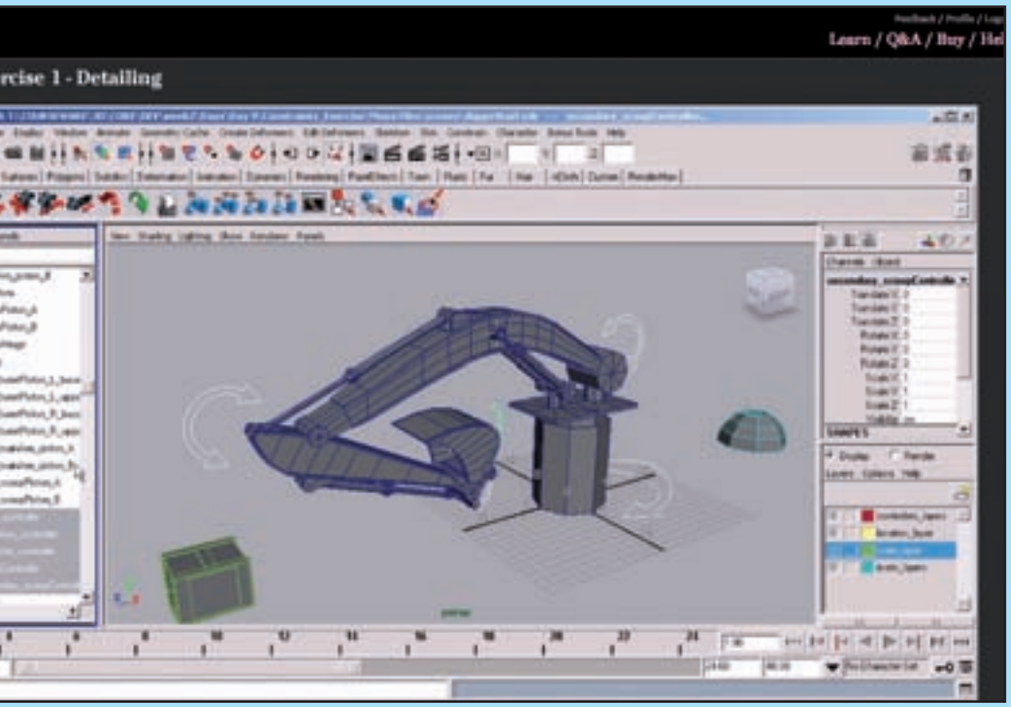
Maya Essentials is a bundle that comprises of several introductory modules – over 70 hours of content – that teaches Maya in depth to new users with no previous experience. Covering all the main topics in digestible module sizes that are around 11 hours long each, the bundle covers an introduction to Maya, moving on to animation, NURBS modelling, polygonal modelling and skinning, texturing, lighting and rendering. It's important to mention that you can also buy the modules individually – the Introduction to Maya module will give you a good idea of what to expect from the follow-on, more detailed classes in the Essentials bundle.

Introduction to Maya is like the first day of school. Starting right from the basics, the module covers all the 3D fundamentals you would expect: modelling, texturing, lighting and rendering. It has been put together to really start us off on our road of discovery as we work through the various modules. The entire bundle arms us with the main skills we should need to start a 3D career, giving us experience in the likes of rigging, efficiently modelling organic, inorganic and hard-surfaced objects, UV-mapping, rendering layers and compositing. The course also takes us into Photoshop to learn the effective texturing techniques used in the industry. You should come out of all this with a range of work that will demonstrate your skills to future employers and – if you complete the entire bundle – you'll be in good stead to tackle more advanced techniques, as well as higher-level courses.

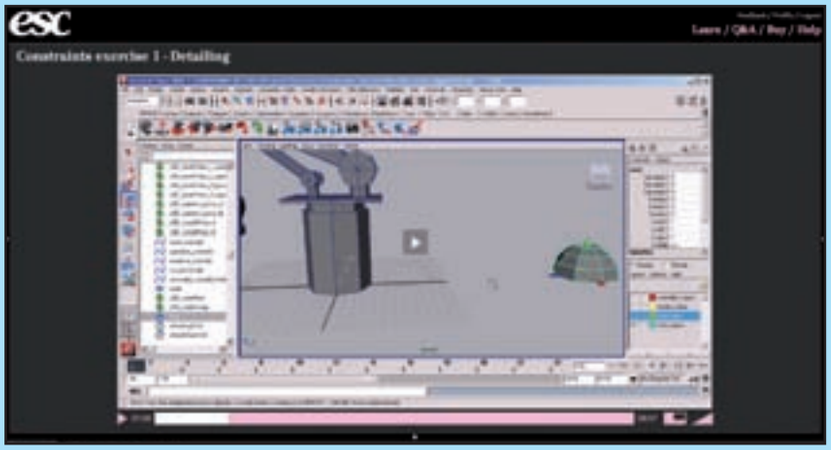
Escape's industry approach to teaching is well recognised by many commercial CG studios, which is one of the great things about these lessons: the step-by-step walkthroughs not only explain the techniques and processes, but do so in terms of the pipelines you can expect to find on the job. The tutors understand what the industry looks for and so offer demonstrable examples of the hows and whys, informing us of what is expected as a member of a CG design team.

The entire system has been designed to be easy-to-use and gives us a friendly, interactive experience that is both intuitive and customisable. Modules are presented as bite-sized video lessons, split into theory and practical sections. This also sets the training apart from others of this variety as the theory gives us the essential grounding we need to fully tackle the practical elements. The theory is clearly of key importance to Escape training and with the handy Scratchpad feature – a unique tool and a significant bonus of this interactive way of learning – you can drag and

© Imagine Publishing Ltd
No unauthorised copying or distribution



The interface is customisable – click on the white arrows to collapse and expand the main screen to make the central video bigger or smaller



With the training being interactive, you have the option of choosing the best viewing arrangement to suit your taste

drop favourite lessons, such as the theory, that you think might prove a useful reference for future training.

If you get caught out by the system, which logs you out when you've been away from the screen, frustration is avoided by a neat little trick that means when you log back in, you'll start exactly at the point you left. This helps keep you in the right mindset and focused.

The tutors have clear voices and pronounce words in a way that should make the training easy to follow. What's more, the tone of the tutorials is calm and friendly – which is exactly what you need when tackling something like Maya for the first time. The pace at which the lessons go is perhaps even slower and clearer than what you would expect of a typical classroom environment. The tutors clearly understand how learning online is different and compensate for this by ensuring steps are covered in as much detail as required, pre-empting anything that might raise questions. Every time a new technique is introduced, a new tutorial is provided on it – this streamlines the learning, prevents the main tutorials becoming too big and makes the in-depth lessons more accessible (remember to take advantage of that Scratchpad).

The Escape interactive experience is as important as the training itself. Being so easy to customise, you can control the way you watch, as well as the way you learn, with extra features like the Scratchpad and downloadable project files offering a constantly fluid and flexible way of learning. Log on, and you're away...

The good & the bad

- ✓ Starts right from the basics in a way that will help you walk before you run
- ✓ It's interactive so you can customise the way you learn
- ✓ Use the Scratchpad to save useful videos for future reference
- ✗ When you have a lot of courses in your account, the search function can be slow
- ✗ It's not cheap, but considering the syllabus is the same as that taught onsite, the course still represents value for money

Essential info

www.escapestudios.com
- £595.74 +VAT
- £297.86 +VAT (Student Version)

DURATION
All courseware is available for 12 months from day of purchase

ACCESS
Training material is streamed direct to your personal account and is accessed through the Escape Studios website. You can access the training as many times as you need to within the 12-month period

RECOMMENDATIONS
A minimum bandwidth of 1.5 – 2MB is recommended. You can test the suitability of your internet connection by registering for a free 30-day trial to Escape's online training

This Maya training even goes into Photoshop basics to help us fully get to grips with industry-proven texturing techniques

Our verdict

Features	8/10
Ease of use	9/10
Quality of results	10/10
Value for money	8/10

"This interactive training will give you a good grounding to take your first steps in Maya"

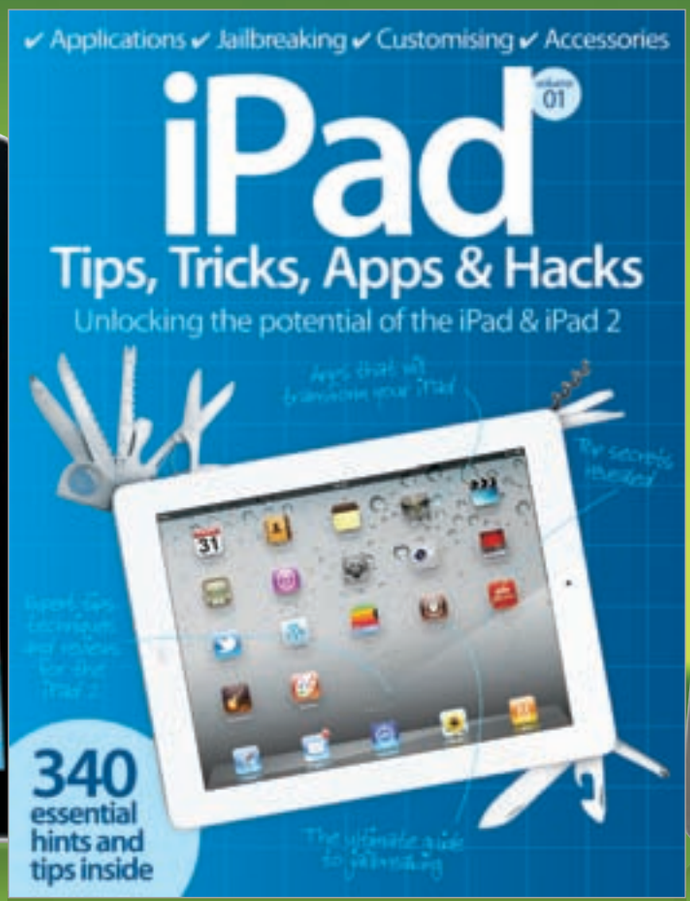
Final Score 9/10

© Imagine Publishing Ltd
No unauthorised copying or distribution

We don't keep secrets

iPhone
Tips, Tricks, Apps & Hacks
The insider's guide to unlocking the potential of the iPhone
340
essential hints and tips inside

iPad



Printed full colour large format book

Kindle

Tips & Tricks™

Learn the truth about iPhone, iPad, Android, Photoshop and more with the Tips & Tricks series' expert advice and tutorials

Also in this series

Bookazines
eBooks • Apps
www.imaginebookshop.co.uk

Now available on

HIGH ST. BUY IN STORE — High street
amazon — Kindle Store
ip — ImagineShop.co.uk
App Store

workspace 3D

Inside guide to industry news, studios, expert opinion and education

> This piece, like all of the former pieces, was shot in the Unreal Engine with actual game assets to demonstrate the amazing quality Epic and Microsoft Xbox put into their product

Vernon Wilbert of Mothership/Digital Domain talks about the latest cinematic trailer for *Gears of War 3*. Page 100

100 Studio Access

Gears of War 3 trailer

There's a new cinematic teaser trailer for *Gears of War 3* on the block so we check out how it was made and the story hints for the game itself

96 News

Industry news

SIGGRAPH is coming – read all about it here. Plus there's a new help feature for you 3D people. Check out the details of these and other recent stories from the 3D industry

98 Insider interview

David Bruce

David is the boss of his own studio, working on everything from TV programmes to advertising, training and games

102 Uni focus

VanArts, Vancouver, Canada

There are three full-time, one-year diploma courses of interest to those looking for a future in 3D and VFX. We check them out

inside

Umbrella Chap
David Bruce
Website www.bluueye.com

To advertise in **workspace** please contact
Hang Deretz on **01202 586442** or **hang.deretz@imagine-publishing.co.uk**

© Imagine Publishing Ltd
No unauthorised copying or distribution

What can we expect of SIGGRAPH 2010?

This year's SIGGRAPH conference and exhibition is all about the 'People Behind the Pixels'

A

A Till Nowak's *Spring* video was featured in the Computer Animation Festival Theater last year in New Orleans

Los Angeles will play host to SIGGRAPH 2010, and with around 25,000 CG and technology professionals anticipated to attend from all corners of the globe, expectations for this year's event are high.

SIGGRAPH is notoriously one of the industry's highest regarded conference and exhibitions in the CG event calendar. Following a comparatively quiet SIGGRAPH last year, 2010 promises attendees an array of courses led by industry experts, academic Technical Papers sessions, specialised talks and a wide variety of presentations. All this in addition to the prestigious Computer Animation Festival, Art Gallery, awards and, of course, the three-day exhibition where over 200 companies will showcase the latest in products and services.

New to this year's event is SIGGRAPH Dailies! This new programme celebrates the CG images and short animations that have excelled in the last 18 months – professional and personal projects alike. And with the Computer Animation Festival trailer (now online at www.youtube.com/user/ACMSIGGRAPH) boasting stunning animation styles with everything from character animation to TV commercials to futuristic movie effects, further bait has been added for those looking to travel to LA for 2010's offerings.

Those looking to pursue or further a career in CG should find the short and half-day courses particularly useful, with lessons ranging from introductions to advanced instruction, and the job fair will be well worth the investment of time by those hoping to meet future employers.

Attendees can plan their SIGGRAPH 2010 experience on the event website. Simply go to www.siggraph.org/s2010 and whether your angle is research, games, art or education, you can plan your time wisely well in advance. With SIGGRAPH a staple event for the CG industry, you may even bump into the artists that inspire you daily, in person!

> "Those looking to pursue or further a career in CG should find the short and half-day courses particularly useful"

Details

When Conference 25-29 July
Exhibition 27-19 July

Where Los Angeles Convention Center

Website www.siggraph.org/s2010

Tips for SIGGRAPH 2010

You'll need at least one night to attend the Computer Animation Festival Evening Theater to check out the best achievements in animation and visual effects from the last year. When you're not attending your pick of the courses on offer, be sure to visit the Art Gallery, the Studio, and Emerging Technologies demos.

Get yourself motivated at the Job Fair where you'll meet other jobseekers and recruiters from around the world

© Imagine Publishing Ltd
No unauthorised copying or distribution

workspace3D
To advertise in workspace3D please contact Hang Deretz on 01202 586442 or hang.deretz@imagine-publishing.co.uk

Inspired artists win internships

Cinesite opens its doors to two lucky winners of the Inspire Programme

B *Harry Potter and the Half Blood Prince* is just one of the credits to Cinesite's impressive project list

Cinesite, one of the leading film visual effects houses, launched an annual internship programme earlier this year and the winners have now been announced.

Graduates were invited to submit a three-minute showreel of their work in application for a six-week paid placement at the facilities where award-winning VFX are realised for blockbuster films. Winning the prestigious opportunity are Chris Mulcaster, a graduate from Portsmouth University with a BA in Computer Animation and Alex Betancourt, who graduates from Bournemouth University this June with a BA in Computer Visualisation and Animation. Both will go on to work on Cinesite's exciting project line-up, including *The Chronicles of Narnia: The Voyage of the Dawn Treader* and *John Carter of Mars*.

Antony Hunt, managing director of Cinesite, has said: "We'll be running the Inspire Programme again next year and hope to continue to grow this programme year-on-year. It's a great way for us to find, grow and nurture new talent."

Smoking hot 3D

The 2011 versions of Autodesk's creative finishing products offer stereo 3D workflow solutions

Autodesk's 2011 releases offer new creative tools and stereoscopic 3D finishing workflow for TV and film. Used to help create the stunning content seen in films such as *Avatar* and *Shutter Island*, these latest products introduce new stereoscopic capabilities that can be implemented into existing workflows.

Stereo is a buzzword right now. Of Autodesk's 2011 product line-up, Smoke for the Mac is one of the most exciting releases, with a huge community building up. An all-in-one editorial finishing system with native support, Smoke offers fluidity between the creative operator and the content. Created based on workflow means it's complementary, offering an alternative to other creative tools such as After Effects; no file conversions avoids any potential data loss, so offers extra efficiency.

This high-end program also has powerful 3D VFX tools and a free 30-day trial is available at http://usa.autodesk.com.

esc IT helpdesk

The industry's most frequently asked questions get answered by the experts

Dan Young
Engineering manager

Company Escape Studios
Company website
www.escapestudios.com

The Escape Studios technology team receives all kind of technical questions from clients and studios wanting to get the best out of their hardware and software for maximum performance. In the IT helpdesk, we take the top questions and shed some light on the issues. Share the knowledge, we say!

GPU vs CPU rendering?

Dan Young: A GPU is a graphical processing unit. At the moment, there's a lot of discussion around what power can be shifted off the computer processing unit (CPU) and onto the GPU in terms of real-time rendering, raytracing and other difficult tasks.

FurryBall is a good example of one of the GPU-based renderers – a viewport-based final render product. The key thing is that it lacks the layers of a traditional final render product – because it's based on real-time usage, things can be fine-tuned before it is exported to a final product file. There are other companies who are working on some exciting things in the GPU RT area, and we should hopefully see more and more to come – but there are always going to be aspects that CPU renders are better equipped to do.

Ironically, the disadvantage of GPU RT is actually what makes it so attractive in the first place, with a 'what you see is what you get' render solution – and taking along everything that you'd take away from its nomenclature. It has come a long way from ArtVPS, and it's an exciting time – watch out for more GPU-based render solutions!

If you have a technical question for the Escape Studios experts, email it to **lynette.clee@imagine-publishing.co.uk**

C Smoke is designed to help reduce the need for editors to work with multiple applications to deliver higher-quality finished content

© Imagine Publishing Ltd
No unauthorised copying or distribution

Industry insider

David Bruce

Commercial 3D artist

Each issue, 3D Artist finds out how people in the 3D industry got their jobs and what you need to know to get a foot in the door yourself

About the insider

Job Commercial 3D artist
Education BA (Hons) Industrial Design
Company website www.bluueye.com
Biography 3D artist living in London. I have a passion for all things CG. I'm a big fan of design, architecture, art and technology. I began working professionally as a 3D artist back in 2003 and have been working and creating CGI solidly ever since

David Bruce is a self-educated commercial modeller and this shows as he works for international clients without inhibition. Well-versed in an educational sense, graduating with a degree in Industrial Design, Bruce went from being student to teacher in one fell swoop, bypassing all steps to create his own 3D studio – Bluueye CGI. His affection and belief have seen him produce design for some of the industry's biggest hitters, including Lloyds TSB, BioWare, Red Vision, Lionhead Studios and more, and he has gradually grown a sturdy reputation for Bluueye, laying a foundation of confidence to further develop the diverse portfolio.

Cutting his teeth with resources such as Gnomon Workshops and online training DVDs, he has further honed his impressive creative skills across a range of themes. These include CGI work in 3D modelling, texturing, lighting and rendering for games, television, film, web and print, through his experiences with such commercial projects. Here, we present a fine variety of work from his impressively sourced portfolio and explore more of Bruce's secrets on how to make it as the boss of your own CGI studio.

3D Artist: *What qualified training do you have that has led to you obtaining your position as a successful commercial designer?*
David Bruce: I have a degree-level background in Design, which was a good foundation to build upon. But starting work in a studio was when I really started to learn the most. I was self taught in 3D and I have been training myself and expanding my knowledge in and outside of work ever since. My favourite methods for learning have to be online training and DVDs from the likes of Gnomon Workshop, magazines such as yours, while also some of the forums can be an amazing source of knowledge and support. In my view, it's been a mixture of all these things that have allowed me to operate successfully as a commercial artist, with clients such as ITV, TSB and BioWare.

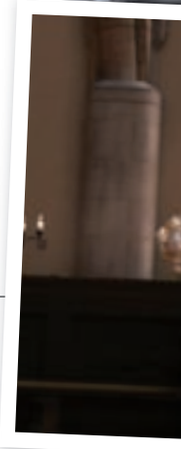
3DA: *Can you tell us of your working experiences with commercial clients?*
DB: Working with people from all over the world is great; you get exposed to some amazing skill sets and personalities and can learn so much. From a production point of view it can be complicated and challenging, especially if you're working remotely. With everyone in different time zones, you have to plan one step ahead to avoid delays. One of the most beneficial things I feel are the techniques the various companies use, the training methods and the different ways they work – all this expands my own skill set.

3DA: *What areas of CG work do your commercial projects tend to include?*
DB: Building in 3D environments, vehicles, sometimes characters, and at times contributing to the design and concept of a commercial piece. On bigger projects, often I will be building a model directly from approved concept art, technical drawings or reference photos. On top of this, it's teamwork, communication and meeting production deadlines. To get the job initially, I have built a strong portfolio of 3D art, using my design skills and 3D knowledge. This is sent out to companies that match my skill set and themes. Building up a big range of skills, experience and a good portfolio is the thing that allows me to keep clients and jobs coming in.

3DA: *What key skills do you believe an artist needs to succeed as a modeller in the 3D industry?*
DB: Natural artistic talent will help immeasurably. A modeller really needs to have a good eye for form, weight, proportion, scale, understanding of real-world objects and physics. On the technical side, you must be able to create good topology and use polygons efficiently in both high and low-end polygon models. Often a modeller is required to lay out the UV maps for the texture artist and might also be required to bake normal maps, AO maps and various other data from high-end models to low-polygon game models.

A

B



Portfolio highlights

David has worked on some high-profile projects including:

2010 Undisclosed project for Ignition Entertainment
2009 Arash Motor Company logo redesign
2008 Lloyds TSB *For The Journey...* campaign
2008 *Headcases*
2007 Lamborghini Murciélago LP640
2007 *Mass Effect*

A *Minos*: Character created from concept art in 3ds Max, Maya and ZBrush

B *Lamborghini Murciélago LP640*: 3D model of a Lamborghini Murciélago LP640. Modelled and rendered in 3ds Max and mental ray. Built from hundreds of reference images

© Imagine Publishing Ltd
No unauthorised copying or distribution

workspace3D
To advertise in workspace3D please contact
Hang Deretz on 01202 586442 or
hang.deretz@imagine-publishing.co.uk

© David Bruce

C © Ignition Entertainment

3DA: *What 3D software do you regularly apply in your projects and to what effect?*
DB: At work, normally I use what the job requires. In my personal work, I love Maya, ZBrush and Photoshop. More recently, I have been using modo, which is just amazing – such a light, fast and great application. I have become a real fan of Sub-D and plan on using it as much as possible in the future, alongside the other 3D applications previously mentioned.

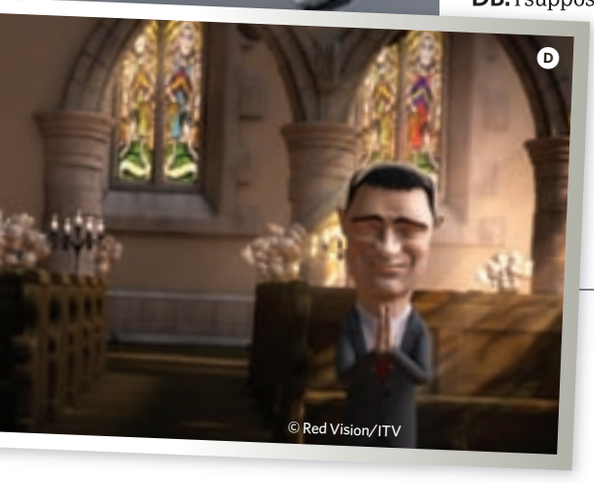
3DA: *Do you apply CGI and 3D in any other design areas? If so, explain where and how.*
DB: Sometimes I produce simple models with basic lighting that the concept artists can use to paint over. Also it's possible to sketch out ideas in 3D applications or sculpt quickly in ZBrush. These can later be worked up into full final 3D models. The Dropship Bug (on my website) started life like this; it was designed and built, then finalised in a 3D application.

3DA: *Do you find time to be creative outside of your role and does this influence your professional design?*
DB: I suppose I'm quite a creative person. When not doing 3D – be it professional or personal – I really enjoy photography and generally take my trusty Canon G9 everywhere. I am constantly snapping and looking for interesting buildings, views and objects. Photography is a good way to develop your eye for CG. I like to visit art galleries and exhibitions for which London is renowned, recently seeing Decode at the V&A and Tent London on Brick Lane. All these things definitely help and influence my professional work.

3DA: *What new projects do you have in the pipeline that you are excited about?*
DB: I am currently working on some personal projects that I'm really excited about. I am re-working my model of the Lamborghini and will be re-rendering in new settings; this work should be on show soon alongside another couple of new CG images. More ambitiously, there is another project on the back burner, which as soon as I find the time, I would like to execute. This is a collaboration project working with a creative in the fashion industry.

3DA: *What would be your dream project and why?*
DB: *Avatar 2* would be a dream project and if James Cameron is actually working on *Battle Angel Alita*, that could be a dream project too. I would also love to work on some sort of glitzy advertising campaign, with loads of super high-end CG renders.

I think at the moment I want to push my skills and create something really incredible. I feel these projects would provide the opportunity to do that.


D © Red Vision/ITV

E © David Bruce

> "Avatar 2 would be a dream project and if James Cameron is actually working on Battle Angel Alita, that could be a dream project too"

C *Damaged Machinery*: Piece of wrecked machinery. Modelled from concept art in modo and rendered in LightWave

D *Headcases – Church*: Church for the TV series *Headcases*, using Maya, Photoshop and RenderMan. Rendered and lit by Red Vision

E *Car Paint Test*: Testing render settings, shaders and HDRI lighting in 3ds Max and V-Ray

© Imagine Publishing Ltd
No unauthorised copying or distribution

Studio Access

Gears of War 3: Ashes to Ashes

Duncan Evans talks to Vernon Wilbert of Mothership/Digital Domain about the latest GoW cinematic trailer

A

Digital Domain is an Academy Award winning digital production studio focused on visual effects for feature film and advertising production. Founded in 1993, the company has built a legacy of achievement, with *Titanic*, *2012*, *TRON: Legacy* and *The Curious Case of Benjamin Button* among its 75+ film credits. Digital Domain is continually pushing into new territory and is being recognised for its pioneering work in photoreal digital humans and productions that bring the worlds of movies, games, advertising and the web closer together. Digital Domain is privately held and based in Venice, California

www.digitaldomain.com

Project *Gears of War: Ashes to Ashes*
Description The cinematic trailer for Epic Games' *Gears of War 3*, due out next year
Country USA
Agency agencytwofifteen
Software used Unreal Engine 3, Nuke, Maya, Flame, Photoshop

Key people

Vernon R. Wilbert Jr
Director

While it's still months until the release of *Gears of War 3* next spring, this April saw another cinematic trailer released to whet the gaming public's appetite. The themes and story told also serve to give tantalising hints of the plot for the forthcoming blockbuster game from Epic Games. The trailer was called *Ashes to Ashes*, directed by Vernon Wilbert of Mothership for agencytwofifteen, with Joseph Kosinski of Anonymous Content as the creative director and Digital Domain as the studio. The sombre, cinematic 75-second teaser was created within the game engine using a production pipeline Digital Domain developed on previous *Gears of War* efforts. *Ashes to Ashes* picks up the *Gears* storyline in the days after the Hammer of Dawn has wiped out an entire city. Set to the haunting track, *Heron Blue* by Sun Kil Moon, the trailer focuses on the character Dom, with cinematic images and camera angles evoking his heartbreaking back story.

Ash falls like snow, blanketing a street lined with the charred corpses of those caught in the nuclear attack. Scouting away from his squadron, Dom engages a small platoon of enemy soldiers before running directly into the blast's ground zero. Gravely injured, Dom accepts death. The appearance of his Delta Squad spurs an epiphany and he joins his brethren in the good fight. A massive tentacle monster rises from the ground and crab-like

> "Ash falls like snow, blanketing a street lined with the charred corpses of those caught in the nuclear attack"

creatures surround the Delta Squad and together they fire at the enemy horde until the spot closes with the title graphic 'Brothers To The End'.

Wilbert collaborated closely with the Microsoft Xbox, Epic Games and agencytwofifteen teams to craft the story behind *Ashes to Ashes*, which hints at new personal struggles for the game's lead characters and introduces new faces, weapons and enemies. To enable him to direct digital action in the game engine as he would in a live-action performance, Wilbert and Digital Domain used their experience on several previous in-engine productions to turn the Unreal Engine 3 environment into a cinematic pipeline.

Wilbert and his crew began the production process with storyboarding, then cut a board-o-matic to music. From there, the team did previs before staging a motion capture shoot at Giant Studios in LA that involved suiting up real-life Special Forces who had served in Iraq. Wilbert explained what happened next, "Once we got the animation we needed in the game engine, we ported it over using tools in the Unreal Engine. Our in-house technical directors wrote some special code that allowed us to control

C

C

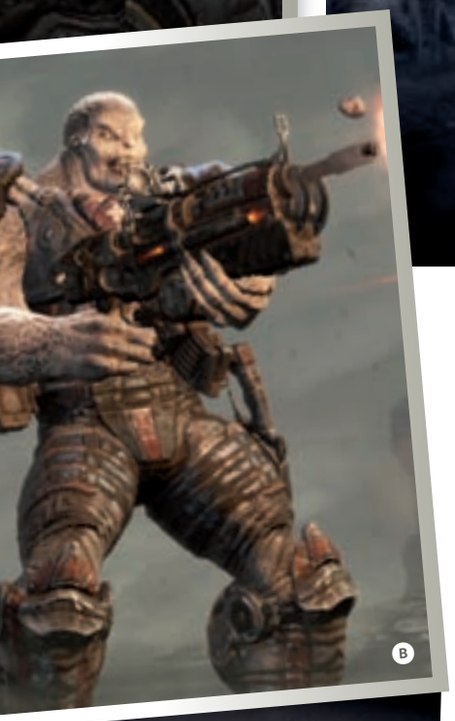
portfolio highlights

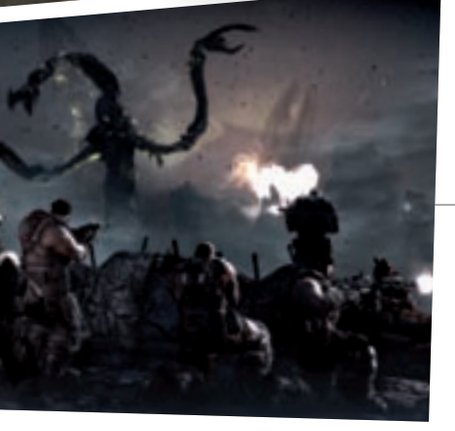
These are some of the projects that Digital Domain has worked on

2011 *Real Street*
2011 *Transformers 3*
2011 *Thor*
2010 *TRON: Legacy*
2010 *The A-Team*
2010 *Percy Jackson... The Lightning Thief*
2009 *2012*
2009 *G.I. Joe: The Rise of Cobra*
2009 *Transformers 2*
2009 *Star Trek*
2008 *The Curious Case of Benjamin Button*
2008 *Gran Torino*
2008 *The Mummy: Tomb of the Dragon Emperor*
2008 *Speed Racer*
2007 *The Golden Compass*
2007 *We Own the Night*
2007 *The Seeker: The Dark is Rising*
2007 *Transformers*

© Imagine Publishing Ltd
No unauthorised copying or distribution

workspace3D
To advertise in workspace3D please contact
Hang Deretz on 01202 586442 or
hang.deretz@imagine-publishing.co.uk





certain aspects of the engine import/export process that we weren't able to control before. This included code that brought in our camera tools so certain camera settings would be retained during the import. The base camera in the engine is designed for gameplay so everything's on a really wide lens and they move around in a particular way. They're not built to move like you are on a Fisher or a crane, or even a Steadicam, so when we're animating for real-world situations, we want to make sure we have the right camera and lens kit."

The team also wrote code to export frames out of the engine itself. The engine is a 30p standard hard-coded export, so they wrote code that paused the engine every 30th of a second and dumped a frame, before continuing on. They also wrote code to access double HD images, at an almost 4K floating point. So, when they got the images out, they were able to colour correct and get all the important information in an uncompressed format.

It wasn't all just mocap for animation though, as there was also plenty of keyframe animation on *GoW 3*. As Vernon explained, "I like to use mocap as a base for our animation team. They add the final look and feel to the performances."

From there, the animation was exported from Maya to the engine. Animation of the Lambents was completely key-framed in Maya and ported over. The polyps were completely AI-driven and done wholly inside the engine. The motion capture was very clean and a good base for the team's needs. Vernon revealed, "I rarely leave mocap untouched by an animator. I find that we need to push poses or adjust timings in CG to keep the performance in line with the medium. Similar to transposing a performance from the theatre to film, adjustments are made to the performance so that the audience can read them more accurately."

The big question remained: did the team try to max up the polys and textures since the game engine wasn't actually dealing with the game itself – to make it look better? Vernon was having none of it: "This piece, like all of the former pieces, was shot in the Unreal Engine with actual game assets to demonstrate the amazing quality that Epic and Microsoft Xbox put into their products. They give us guidelines and we keep to them. It's an important part of these spots to give the viewer the closest experience we can to the fidelity of the game."

While the team had a lot of experience working with Unreal Engine 3, it's always tricky; as Vernon puts it, "Directing in-engine is like fooling your children into eating spinach when they want ice cream. The game engine is built to make amazing games. It doesn't want to be Spielberg. But since our work on our first *Gears of War* spot, *Mad World*, we've developed a very solid machinima pipeline that's hot-wired to be artist-driven."

Because the majority of Digital Domain's artists use standard industry programs like Maya, RenderMan and Houdini, they wrote specific software that enabled the game engine to interface with their production pipeline. By now, Digital Domain has fine-tuned the machinima workflow to the point that it's almost become a third pipeline to complement the feature and commercial pipelines. Vernon explained, "Machinima certainly isn't new or groundbreaking anymore, but we've refined our production technique so that it's not so unpredictable and uncontrollable."

All in all, *Ashes to Ashes* had a turnaround of 11 weeks and involved a large Digital Domain team of 35. It's the fourth *Gears of War* spot that Wilbert and Digital Domain have done with the Xbox 360 ad agency team.

A Concept character art showing one of the main protagonists from the game. The wireframe has been accurately designed from it

B The cinematic draws in elements from the games that has been seen so far but adds subtle teasers for things that may happen in GoW 3

C An actual mo-cap shoot was organised to get the movement of the characters as realistic as possible

D This trailer has a very grim and distressed look to it, which is no surprise since it is set in the aftermath of a nuclear attack

© Imagine Publishing Ltd
No unauthorised copying or distribution

+ The best courses and freshest talent from universities around the globe...

VanArts

Globally reputable VanArts provides tailored education led by industry veterans to help students launch a career in the visual and media arts

VanArts has been expanding since 1995 as the demand for courses in media arts has grown. Developing still, a further three floors are now being added to the campus in downtown Vancouver, making it a desirable environment for those looking to embark on a career in 3D and visual effects.

There are three full-time, one-year diploma programmes of interest to those looking for a future in 3D and VFX: 3D Character Animation, Entertainment Art for Film, TV & Games, and Visual Effects for Film & Television. With mentorship driven to help artists reach their full potential and curricula that go beyond just facts and forms, students are encouraged to collaborate between the programmes of study as they prepare to embrace the industry.

3D Character Animation is designed to emphasise the principles of animation, with students taught the fundamentals in shared classes with the 2D programme. Collaborative assignments and critiques are all part of the positive experience promoted by the school. Over 12 months, artists tackle life drawing, character animation, drawing for animation, and visual language and storytelling, employing Maya as the 3D software. Graduates have notably gone on to work for some of the best studios in the industry, including Weta Digital, Framestore and Disney on box office hits such as *Avatar* and *Alice in Wonderland*, indicating the course's impressive success rate.

Entertainment Art for Film, TV & Games focuses on conceptualising and modelling characters and environments for film, TV and videogames. Led by Alan Harrison, who to date has over 18 AAA titles to his name, the lessons taught cover a broad spectrum of art foundations. Also covered are world modelling, low-poly modelling, concept art, life drawing, sculpture, preproduction, character modelling, surfaces and texturing, rigging, rendering, as well as the basics of Maya and an introduction to ZBrush.

"Four months after graduation, I was hired by Ganz in Toronto as a full-time 3D artist and I'm now a permanent resident of Canada," Sudarsan Varma, graduate of the Entertainment Art for Film, TV & Games programme has commented. "I owe a lot of my success to the great VanArts' teachers and curriculum."

Visual Effects for Film & Television continues to impress, overseen by lead layout technical director on *Avatar*, William Dwelly, and designed to develop the strong basic skills required by artists in visual effects creation. Using Maya, Shake and Houdini, as well as ZBrush and Photoshop, everything from green screen film production to 2D/3D content creation is covered. This exciting course explores a vast number of topics, including VFX production, compositing, storyboarding, matte painting, digital cinematography, environment modelling, advanced lighting, shading and texturing, and 3D particles and dynamics. The resulting examples of work on the following pages speak for themselves.

Find out more about VanArts and follow updates on the campus renovations at www.vanarts.com.

> "The VanArts model of running the VFX programme as a production house is the only way to train for success in this industry"
>
> **Matt Welford,** lead compositor, Weta Digital and Moving Picture Company

Course details

Name 3D Character Animation
Award Diploma
Length One year

Name Entertainment Art for Film, TV & Games
Award Diploma
Length One year

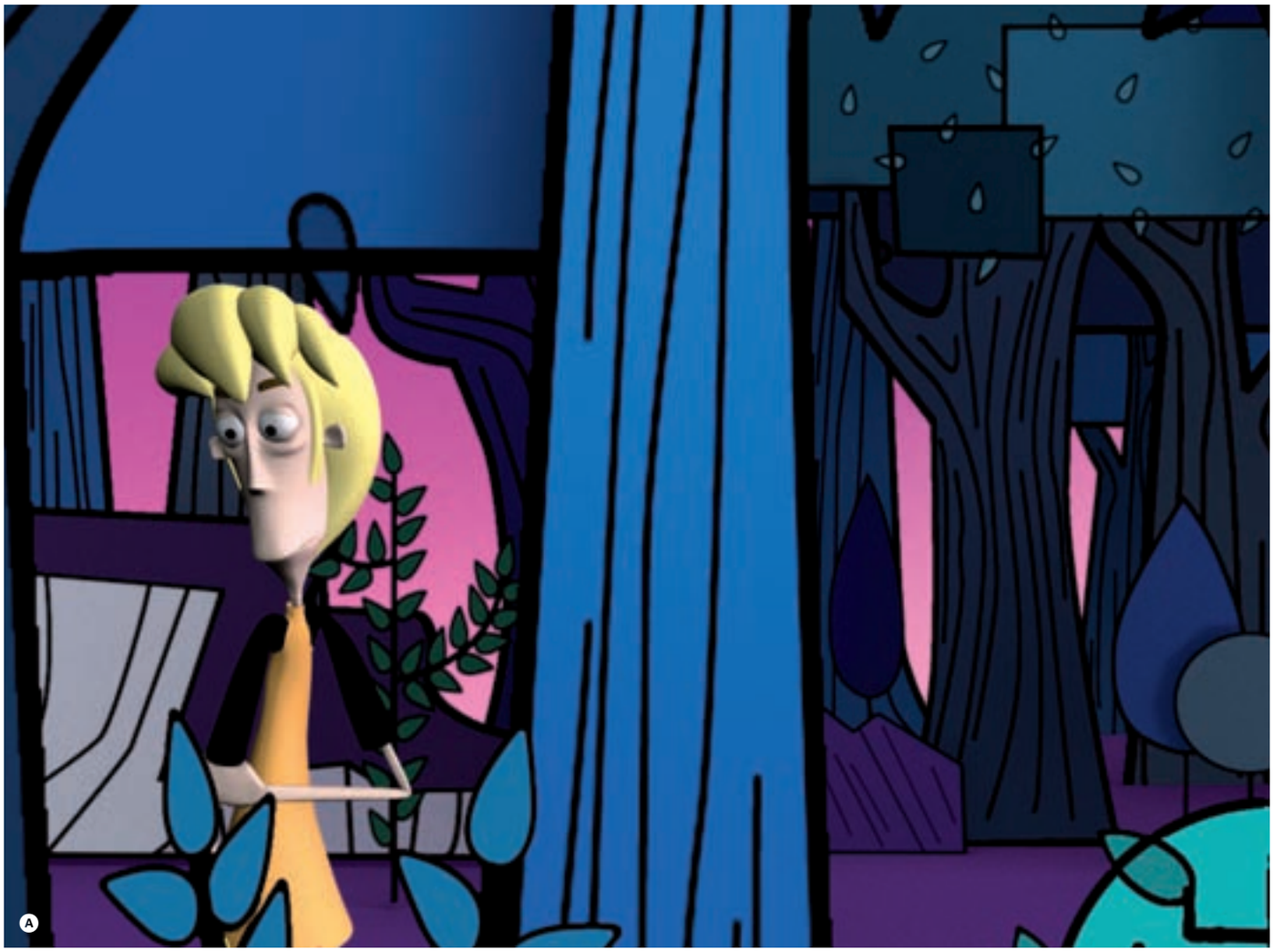
Name Visual Effects for Film & Television
Award Diploma
Length One year

Fees These full-time programmes cost $29,750 CDN for Canadians and permanent residents and $34,750 CDN for Americans and international students

Start dates March and September each year

ENTRY REQUIREMENTS
Requirements for admission are: minimum 19 years of age or high school graduate, a 12-piece portfolio, current resume, letter of intent, high school or college/university transcripts, proof of age document, completed application form and $100 application fee. All materials can be submitted online at www.vanarts.com/admissions/apply

© Imagine Publishing Ltd
No unauthorised copying or distribution



A

B

C

A Alannah Mayes
Course: 3D Character Animation
Time taken: Three months
Software used: Maya, Photoshop

B Manuel Alderete
Course: 3D Character Animation
Time taken: Three months
Software used: Maya, Photoshop

C Zeph Ng Zhibin
Course: 3D Character Animation
Time taken: Three months
Software used: Maya, Photoshop

© Imagine Publishing Ltd
No unauthorised copying or distribution

Uni focus

D

> Since studying at VanArts, I've worked at Electronic Arts twice, Radical Entertainment and Stargate Studios. I also modelled the spacecraft Antares for ABC's new TV series Defying Gravity

Dan Lupton, Entertainment Art for Film, TV & Games graduate

E

F

G

D Erin McNair
Course: Entertainment Art
Time taken: Three months
Software used: Maya, Photoshop, ZBrush

E Andrew Bain
Course: Entertainment Art
Time taken: Three months
Software used: Maya, Photoshop, ZBrush

F Roger Van Koughnett
Course: Entertainment Art
Time taken: Three months
Software used: Maya, Photoshop, ZBrush

G Adriana Nieto
Course: Entertainment Art
Time taken: Three months
Software used: Maya, Photoshop, ZBrush

© Imagine Publishing Ltd
No unauthorised copying or distribution

H Belinda Fung
Course: Visual Effects
Time taken: Three months
Software used: Maya, Houdini, Shake

I Nina Laureles
Course: Visual Effects
Time taken: Three months
Software used: Maya, Houdini, Shake

J Stu Hunter
Course: Visual Effects
Time taken: Three months
Software used: Maya, Houdini, Shake

K Paco Castillo
Course: Visual Effects
Time taken: Three months
Software used: Maya, Houdini, Shake

© Imagine Publishing Ltd
No unauthorised copying or distribution

iTUNES SEARCH: 3D ARTIST

iTUNES SEARCH: RETRO GAMER

iTUNESSEARCH:DIGITALARTISTMAGAZINE

iTUNES SEARCH: GAMES TM

iTUNES SEARCH: ICREATE

ITUNES SEARCH: PHOTO FOR BEGINNERS

Requirements: Apple iPhone 3G, 3Gs, iPod Touch or iPad >> iPhone 3.1.2 or higher >> an Internet connection

Everything you love about mags but now in digital form & yours forever!

iTUNES SEARCH: X360

iTUNES SEARCH: 360 MAGAZINE

iTUNESSEARCH:PHOTOSHOPCREATIVE

iTUNES SEARCH: SCIFINOW

ip IMAGINE PUBLISHING
Available on the iPhone App Store
POWERED BY PIXELMAGS™

iTUNESSEARCH:ADVANCEDPHOTOSHOP

web designer
HTML5 HAS EDGE
PHOTOSHOP TEMPLATE SECRETS UNMASKED
The professional's guide to creating perfect page themes

iTUNES SEARCH: WEB DESIGNER

iTUNES SEARCH: HOW IT WORKS

iTUNES SEARCH: LINUXUSER

iTUNES SEARCH: TOTAL 911

iTUNES SEARCH: PHOTOGRAPHER

iTUNES SEARCH: PLAY MAGAZINE

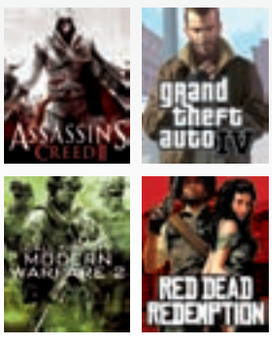
iTUNESSEARCH:SMARTPHONEESSENTIALS

New: The latest video game cheats and tips

For Xbox 360 guides:
XBOX 360 Cheats & Tips
iTUNES SEARCH: CHEATS & TIPS

For Playstation 3 guides:
PS3 Cheats & Tips
iTUNES SEARCH: CHEATS & TIPS

Guides for all consoles:
PowerStation
iTUNES SEARCH: POWERSTATION



Dedicated advice for runners of all abilities
Go Run
Nutrition made easy
All-ability running schedules
Become a better runner today!

Whether you want to run to lose weight, get fit or meet personal goals, this app has everything you need to know

iTUNES SEARCH: GO RUN

New: Digital-only magazine for runners of all abilities

Your favourite magazines now on iPad & iPhone

- Download direct to your iPhone or iPad
- Once downloaded, you do not need an Internet connection to enjoy
- Subscribe for 6 or 12 months
- Pages are flickable, zoomable and viewed in either widescreen or portrait format
- Purchase individual issues
- Share it with your friends

Download now from the iTunes App Store